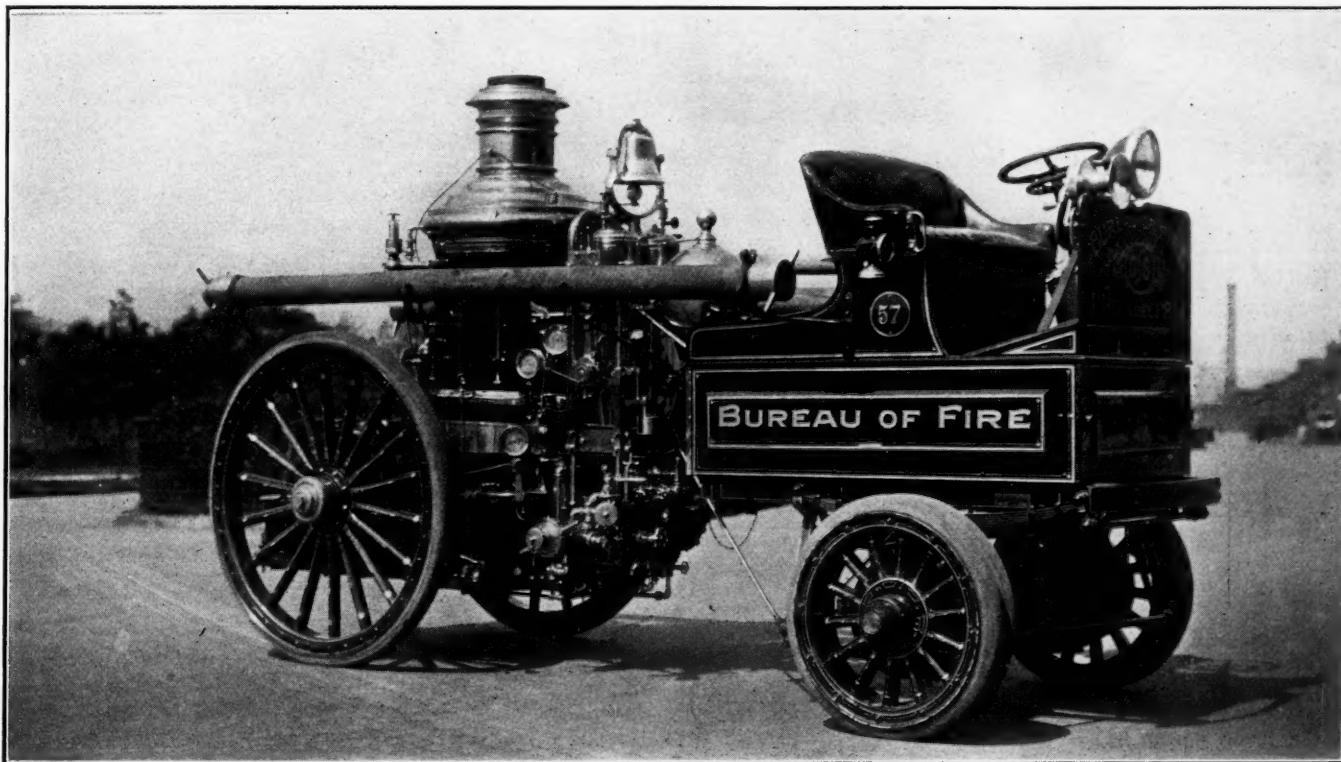


Municipal Journal

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No. 2



STEAM FIRE ENGINE, ELECTRIC TRACTION.

PHILADELPHIA'S FIRE DEPARTMENT

One Hundred and Seventy-four Pieces of Apparatus, Fire Boat and Thirty Miles of Hose—Rapidly Motorizing Apparatus—Gasoline, Gasoline-Electric and Storage Battery-Electric Apparatus.

Although not the largest city in the country, Philadelphia probably has a larger area of residence districts more or less closely settled than any other city of the country, and in this respect presents a problem of fire protection different from that found in the other large cities. The population of the city is 1,658,000, covering an area of 83,340 acres, of which we believe a less proportion is unoccupied or thinly settled than in either Chicago or New York.

In order to furnish fire protection for this area, the Bureau of Fire of the Department of Public Safety maintains a fully paid force of 1,022 men in 73 fire stations, and uses 172 pieces of apparatus in addition to a fire boat and repair truck.

The force comprises a chief—William H. Murphy, and deputy chief—Ross B. Davis; 11 battalion chiefs, 77 captains, 79 lieutenants, 59 steam engineers, 61 firemen, 18

tillermen, 98 drivers and 617 hose men and ladder men. The men are allowed three hours off each day for meals, with every sixth day off and 14 days' vacation with pay. In addition to the paid municipal department there are three insurance patrols which do salvage work.

The apparatus is largely horse drawn, there being 147 pieces so drawn, but is being changed over to automobile, 25 pieces of motor fire apparatus and a motor repair truck already being owned by the department. The horse-drawn apparatus comprises 53 engines, 66 combination wagons, 3 hose reels, 4 chemical engines, 15 trucks and 6 battalion chiefs' carriages. The motor apparatus consists of 4 engines, 5 combination wagons, 1 chemical engine, 3 trucks, 2 water towers, 3 high pressure wagons, 5 battalion chiefs' automobiles, each carrying a chemical tank, and 2 automobiles, one for the chief and one for the deputy chief. The bureau has in



MARKET ST. STATION EQUIPMENT.

service 100,000 feet of 2½-inch hose, 15,000 feet of 3½-inch hose, and 34,200 feet of ¾-inch and 1,200 feet of 1-inch chemical hose.

The department owns 487 horses, but only 267 are in actual service, the others being in reserve. When apparatus is motorized, the horses previously used are turned into the city stables for reserve use.

There is one fire boat, the Edwin S. Stuart, to protect the long water front on the Delaware river. This boat is 115 feet long, 23 feet beam, 150 tons gross, or 75.27 tons net. The pumps are of Clapp & Jones manufacture, 9,000 gallons capacity. In addition to the fire boat, there are four police boats equipped with fire pumps.

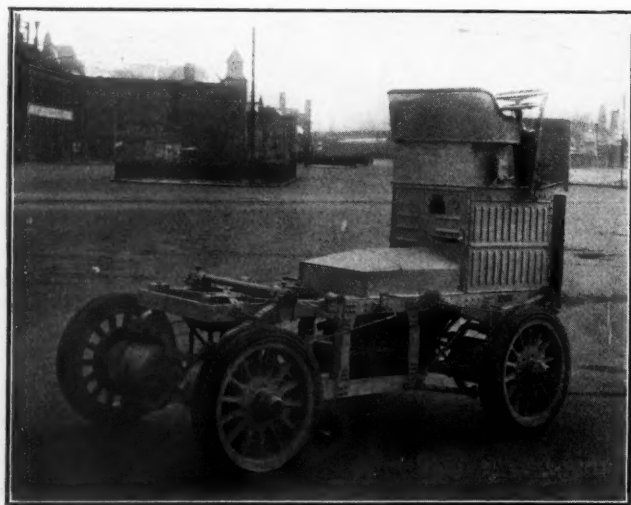
There are 2 high pressure districts which cover about 50 square miles. The fire alarm system is of Gamewell manufacture, and comprises 691 boxes on the underground and 1,279 on the overhead system and 224 auxiliary boxes.

The bureau maintains a school for firemen, in which is taught the use of apparatus and equipment, with the end in view of saving time and labor, and also for the safety of the men and of others. Thirty working days are devoted to this. New men are placed in the commercial district to receive practical instruction. There are no practice towers at any of the stations for use in the instruction.

The fire houses are inspected twice a week by the battalion chief and twice a year by the chief engineer.

In 1913 there were 3,760 alarms. The cost of operating the department for that year was \$1,426,105.22.

The work of motorizing the Philadelphia Fire Department is going on rapidly. During the past year, over twenty pieces of motor-driven apparatus, including six electrically-driven pieces, have been added to the service, and there are now twenty-five motor-driven pieces

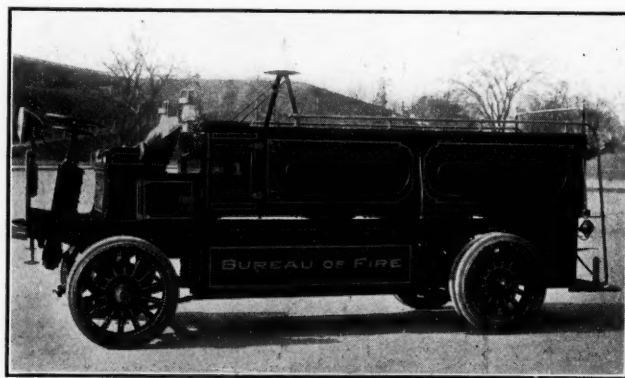


COMMERCIAL TRUCK CO. FOUR-WHEEL TRACTOR.

in use. In the down-town portions of the city the horses are nearly eliminated and it is planned to do away with them entirely in the near future. Electrically-driven apparatus, especially, has shown its worth under actual service conditions.

The new electric equipment includes three electric tractor storage battery engines, one electrically-driven truck, one gasoline-electric truck, one high pressure and a 4-wheel tractor storage battery water tower. The electric equipment was furnished by the Commercial Truck Company of America, of Philadelphia, and the American-La France Company of Elmira, N. Y. The electric pieces have a maximum speed of about 16 miles per hour, but on account of their ability to accelerate rapidly, make excellent time. In a test run held some time ago, the electric apparatus held its own in competition with the gasoline-driven equipment.

Power is furnished by storage batteries, and the drive is from the front wheels by the two-motor concentric gear drive, with double reduction planetary gear. In this equipment, two motors are used to drive the machine, a motor being connected directly to each of the front wheels by a simple spur concentric gear. This is



ELECTRIC HOSE CART.

found to be lighter and more efficient than one larger motor and a differential gearing.

In the 4-wheel tractor, the drive is by a motor mounted on each of the four wheels. The gearing is the same as that on the front wheel drive.

In several of the above cases, the original piece was horse drawn. The American-La France Company has installed the front wheel drive by cutting off the fore part of the old apparatus, removing the fifth wheel and substituting for them the front wheel and axle furnished by the Commercial Truck Company. This plan reduces the cost and allows old equipment to be used, while permitting the department to be modernized.

There are also in the Bureau of Fire several pieces of apparatus drawn by Christie front drive tractors, made by the Front Drive Motor Company, of Hoboken, N. J. These have been attached to old equipment in the same manner as the electrically-driven trucks described above. These tractors are of 90 horsepower, will develop a speed of 30 miles per hour and will climb a 21 per cent grade. The drive is through a nickel steel shaft and a universal joint direct to a 20-inch gear wheel incased in the front wheel. The front wheel itself is of steel construction, with internal driving gears rigidly attached to steel casings. The drive is directly over the center point of road contact.

The bureau has not yet secured sufficient data for making a comparison of the cost of motor and horse-drawn apparatus, but is compiling such data, and as soon as possible expects to be able to make such comparison.

COLLECTION OF ASHES AND GARBAGE

In Scranton, Pa.—Routing of Collectors the Most Difficult Problem—Checking Up Collections—Rules Enforced by the Bureau.

By JOHN G. HAYES.*

The city of Scranton, Pa., at the present time has an estimated population of 145,000 people and covers an area of 12,509.9 acres. While the question of the collection of ashes and garbage and the subsequent disposal of the latter is not as great a problem in this city as in other larger municipalities of this country, it is my idea that after the reader of this paper has closely analyzed the few facts and figures which I have submitted, it will be the consensus of opinion that we have in Scranton, under the present administration, an economical, efficient and a highly successful system. The operation of this collection varies greatly from season to season and mention of this variance is mentioned further on.

With all due respect to the former governments of this city, I am firmly convinced that our present arrangement for collection of ashes and garbage is more effective than at any time in the past. In former years there were two distinct and entirely separate systems, viz.:—The Bureau of Ashes and Garbage Collection and the Bureau of Garbage Disposal, with a superintendent in charge of each bureau. Under our present system, however, these two bureaus have been combined, with one superintendent in charge. It can therefore be readily seen that from a standpoint of efficiency, with the two bureaus working under one head, more satisfactory results can be obtained, to say nothing of the economy of the combination.

The question of the disposal of rubbish, garbage, etc., is probably as great, if not greater, than the collection itself, and as a preface to the data which follow, permit me to give a brief description of our incinerating plant. The building is of entire concrete construction, originally equipped with four Lewis and Kitchen furnaces, but later greatly improved by our present superintendent of the collection of ashes and garbage, Jacob Mantz, so that at the present time the maximum disposal per day is 95¾ tons, and there is an average daily consumption of 60 tons. This work is performed with a decrease of 66 2-3 per cent in the cost of fuel, 70 per cent decrease in the cost of operating and an increase of 100 per cent in the consumption over that which the original furnaces were guaranteed to give. I might state here parenthetically that to consume the rubbish and garbage collected in this city during the month of May last cost 30.35 cents per ton, which in my opinion is decidedly cheap.

The Bureau of Ashes and Garbage normally consists of a force of 125 men, 16 ash wagons, 12 garbage wagons, all of the Heywood automatic dump type, three single horse wagons and 60 horses. During the summer season, as mentioned previously, our ash force varies greatly and consists of a fewer number of men with 9 teams, a decrease of 7, and the collection is made once every two weeks instead of once each week, as during the winter season. The number of garbage routes is constant the year around. The ash routes are manned with a driver who is in full charge and two helpers, except in sparsely settled districts, where only one helper goes with each wagon. The garbage routes have a driver who acts in the same capacity as a helper. All drivers are held re-

sponsible for the conduct of employees on their respective routes and actions of incivility or the taking of intoxicating drinks while on duty are strictly prohibited. Frequently it has come to my attention that employees have received remuneration from generous citizens for the removal of their ashes and garbage. Reports or accusations of this nature are carefully investigated and any violation of this rule, as well as the other two rules mentioned, are dealt with by disciplinary action. It has been my experience that these rules alone, if properly enforced, will have a vast tendency towards efficient service.

The assignment of ash and garbage routes is without doubt the most difficult problem which confronts the prime movers in the efficient organization of such a system and this task confronted the present city administration in so far as reassigning the routes is concerned. Each route is numbered and the wagons which cover it are given a number to correspond, such being painted on the wagon bodies. The following table, showing the approximate population by sections and the number of the ash and garbage routes assigned to each, will give an idea of the system in this city during the winter season or when the ash collection is naturally the heaviest:

Section	Estimated Population	Ash Routes	Garbage Routes
Central City	301,257	5	6
West Side.....	386,969	5	3
North Side	46,161	3	2
South Side	28,963	3	1

A close observation of the table will show that the greatest number of routes are not assigned to sections with the largest population; rather they are assigned by taking the haul as well as the population into consideration. All ash dumps are located in the suburbs and in these sections the ash routes are few in number. The garbage routes are as a rule fewer in the suburban sections, owing to the fact that in a great many instances the housewives burn their garbage rather than wait for the regular collection. As before stated, conditions must be taken into consideration before the assignment of the routes can be perfected.

It is a fast rule of this bureau that the ash wagons make a required number of trips to the various dumps each day and a similar rule governs the movement of the garbage wagons to the crematory. If for any reason the specified number of trips cannot be made, a report of the delay and its cause must be forwarded to the superintendent by the driver with his daily time sheet, giving reasons, etc. At the incineration plant we have a clerk in charge, who attends to the weighing of the loads as they are brought in and the time of arrival. The same arrangement prevails at our various ash dumps, where the man in charge reports to the superintendent the number of trips daily from each route. These various reports, together with the daily report and time sheets from each driver, place the superintendent in a position to know just how the routes are being covered.

It is the duty of the superintendent to personally investigate complaints arising relative to the collection, which also renders it possible for him to keep in daily contact with conditions of the various routes. In other cities of this country where an ash and garbage collection is in vogue, there is a tendency for the householders to place the ashes or garbage in various kinds of receptacles and also ask in some instances and at other times insist as "citizens and taxpayers of this municipality" that certain kinds of refuse and receptacles be taken. In order to reduce requests and subsequent complaints to

*Director, Department of Public Works, Scranton, Pa.

the minimum and also to require efficiency of our employees, I am quoting the rules which were recently adopted and which I believe have had a tendency towards furthering the successful working basis of this Bureau. These rules follow:

ASHES.

Ashes and garbage will be collected regularly from premises where the following rules are closely followed:

Ashes must be kept in receptacles of not more than 2½ bushels capacity; of proper size so that they can be conveniently handled by our men, and of the design that are sold by our city hardware men for this purpose.

Ashes must not contain rubbish, garbage, papers or plaster; such accumulation as broken glass, tin cans, china-ware, bottles, etc., will be taken with ashes, provided such is in proper receptacles and not mixed with ashes.

Ash receptacles must be kept covered to prevent rain and snow from entering same. No ashes will be removed where any water has accumulated in the receptacle.

The amount of ashes collected from residences will not exceed 2½ bushels per day. Business places, apartment houses and charitable institutions not more than 10 bushels per day.

All receptacles must be placed at a point convenient for collectors, within reasonable distance from the curb line, and receptacles will be replaced by collectors from where they are taken.

Collectors will not be permitted under any circumstances to enter any house, cellar, stable, place of business or out-house for the purpose of procuring ashes or garbage, nor will they be permitted to carry ashes or other accumulation up or down steps where such steps lead to or from a cellar.

Rubbish that may accumulate as the result of maintenance of lawn, shrubbery or repairs to dwellings or building operation, will not be removed by the city collectors, and must not be kept in with the ashes or garbage.

Garbage will mean and include all kitchen and table waste, market refuse and all putrescible matter which may result from the preparation of meat, fish, fowl and vegetables of any character, or which may be caused by the decay of foodstuffs.

GARBAGE.

Garbage must not contain any manure, excreta, street dirt, tin cans, glass, crockery, bottles, metals, oyster, clam or mussel shells, canned goods in cans, or anything which can be classified under ashes. Nor will garbage be accepted where dish water has been thrown into it.

Garbage receptacles must be kept covered and such garbage will not be removed unless this rule is complied with. The covers of such receptacles will not be removed by city collectors until contents of the can is loaded into the wagon, and said cover will then be replaced by the collector and the can returned to its original position.

All receptacles must be placed at a point convenient for collectors and must not contain more than 2½ bushels.

Rubbish such as old shoes, paper, excelsior, mattresses, rugs, etc., will be taken with the garbage, but must be kept in a separate receptacle.

No city collector will be allowed to separate any accumulation of ashes or garbage.

At no time will city collectors be allowed to shovel any accumulation whatever from the ground into receptacles or into a wagon.

Positively no tips will be taken by city collectors, nor should they be offered. Collectors violating this rule will be subject to discharge at once.

As mentioned above, our ashes are disposed of on dumps located in the suburban sections of the city, and in order to eliminate the necessity of disposing of them in this manner, we are at the present time contemplating the flushing of this ash accumulation into the abandoned workings of the coal mines in this region. The work will be performed under hydraulic pressure and bore holes 8 inches in diameter, to convey the ashes into the mines, have already been started from the surface. This operation will answer a two-fold purpose. It will render the surface of the city safe against settling and will also eliminate the unsightly ash dumps. We expect to dispose of 75,000 tons of ashes annually in this work and in a few years hence the exaggerated condition of the surface of Scranton will be improved.

It matters not how much time is spent in improving

the ash dump sites, they still remain unsightly, as before stated; not so much from the standpoint of the ashes themselves, but from the tin cans which are allowed to lie and get rusty. In order to eliminate these conditions, I have given instructions that these cans be saved and stored in a dry place and when a car load has been collected, we forward them to a buyer in the state of New Jersey. I find this to be a profitable revenue and with the exercise of a little care the proceeds are far beyond one's expectancy.

If those interested in similar movements or matters appertaining to the above are of the opinion that such a system of ash and garbage collection and subsequent disposal can be inaugurated with anything other than good hard work and forethought, I fear a mistake will be made and one that will be difficult to rectify. The fact that our superintendent is constantly going over the various routes and keeping in personal contact with existing conditions is a great aid towards making our system efficient to the highest degree. The weak points in our organization can be ascertained and immediate steps taken for their improvement. In my opinion the three great essentials for a successful system are—proper assignment of the routes, suitable equipment and a force of conscientious employees.

A MUNICIPAL PUBLIC UTILITY ALLIANCE.

A movement has been started by mayor Blankenburg of Philadelphia, which is said to be supported by mayors Mitchel of New York, Harrison of Chicago, Baker of Cleveland and Shroyer of Dayton, the purpose of which is to secure the co-operation of cities, both large and small, in collecting data and furnishing information and arguments to be used by cities in any contests, either friendly or legal, which they may have with public utility corporations. Mayor Blankenburg has addressed a letter to the mayors of all the principal cities of the United States in which he states that he is persuaded that the side of the people has seldom, if ever, been adequately presented before public service commissions when the question of rates and other relations between public utility corporations and consumers arise, while the interests of such companies are presented and argued by the best informed and most able men in the country. "If the cities do not join together for the presentation of their cases as the public utility companies have, the laws and precedents established by the commission stand in danger of being biased by the able arguments of the representatives of these corporations.

"The equipment required for an adequate presentation of the rights and interests of the people involves a degree and extent of technical knowledge and information which it is not practicable for any one city to obtain. This knowledge and information is much the same for each city, and its cumulative use would greatly add to its value. It must be borne in mind that the utility companies constitute themselves an offensive and defensive alliance, probably stronger than any other interest in this country. Its weakest member is never without information and assistance of every kind.

"To meet this situation, it has been suggested that there should be formed a bureau of public utilities research, which shall equip itself to give to the cities the same able assistance which the public utility companies' associations give to the public utility companies, thus in effect constituting an offensive and defensive alliance among the cities similar to that existing among public utility corporations."

With a view to forming a permanent organization of this character, Mayor Blankenburg is inviting city offi-

cials in the entire country to meet in Philadelphia in the autumn of this year. We do not understand that it is proposed that this organization shall be necessarily antagonistic to public service corporations, but only that it may enable cities of any size to be adequately represented in any conference, dispute or lawsuit which may arise between officials and public service corporations, having especially in mind the presentation of the people's case before the state or municipal public service commissions when disagreements are submitted to them for decision. The idea was directly suggested by the associations already formed by private companies, and there seems to be no more reason why such companies should consider such an association of municipalities as hostile to them, than why the cities on the other hand should look upon an association of utility companies in such a light.

The demand for prompt action is thought to lie in the fact, as stated in the mayor's letter, that precedents are being established in the various states already supplied with public service commissions, and will soon be established in those other states which are about to create such commissions; and that precedents of this kind once established are very difficult to change.

ST. PAUL STREET WIDENING.

It is the general impression that eastern cities alone are faced with problems of narrow streets, and that in the middle and far west the cities have made ample provision for future developments in traffic. This is not altogether the case, however. Several of the older cities, at least, in the middle west, have found it necessary to widen some of their streets, one instance of this being St. Paul, Minn., which decided last year upon the widening of Robert street from 55 feet to 75 feet for a distance of 4,257 feet. This is a retail street, and originally had 10-foot sidewalks and a 35-foot roadway. In September of last year, the Board of Public Works confirmed the order of council for the widening of the street to one with 13-foot sidewalks and a 49-foot roadway. This involves the reconstruction of the buildings on the west side of the street, including the vaults under the sidewalks in connection with the same, as well as the widening of the east sidewalk, and the entire recon-

struction of the roadway and the west sidewalk. This work was begun early in the present year.

As shown by the accompanying sketch, this widening leaves the old vaults or areaway in the roadway just outside of the west sidewalk, and it is proposed to use this as a tunnel in which to place the gas and water mains, wire conduits and other public utility structures. There would seem to be considerable virtue in this suggestion, and the idea is novel and interesting, but of course such opportunities would not be presented to many cities or probably to any city over an extended area.

GRANITE BLOCKS AND TOUGHNESS.

July 1, 1914.

Editor Municipal Journal,
50 Union Square, New York City.

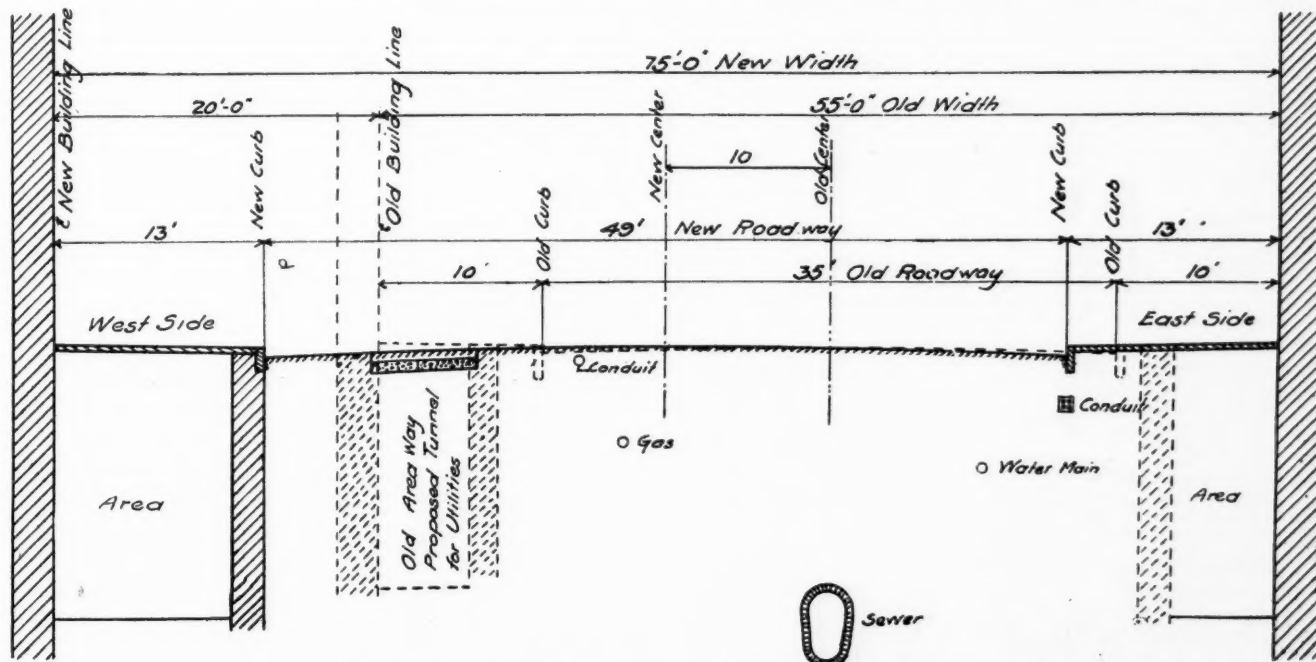
Dear Sir:

There has just come to my attention the letter published in your issue of June fourth under the head of "Granite Block Pavement," taking exception to the article on the same subject in the April second number, which consisted mainly of extracts from the annual report of the Manhattan Bureau of Highways.

Your introductory paragraph would be sufficient answer to the statements of the writer of the letter were it not that this communication is apparently being used as advertising matter for certain granite interests. The author would hardly have signed his name to such a letter had he read the report from which the extracts were made. The various definitions which he gives and which he appears to think are necessary to obviate an assumed confusion of terms are all given in more detail and at greater length in the report quoted by you in the form of extracts from Bulletin No. 44 of the Office of Public Roads issued by the Secretary of Agriculture June 10, 1912.

Certain errors in the letter should be corrected. When the statement was made that the granites referred to in my report were "arranged approximately according to the hardness," the words were meant as written and not as corrected by Mr. Ramsay to refer to compressive strength. The classification was merely approximate but corresponds very nearly to the results of tests for hardness which have been made of samples of the quarries named.

While Mr. Ramsay's statement as to the definition of hardness, toughness, etc., are correct, many of his deductions are wrong. Of twenty-three samples from the principal granite quarries supplying our paving block tested by my office for hardness, all were found above the minimum limit set by the U. S. Office of Public Roads in its definition of a hard material as opposed to medium and soft. Salis-



SKETCH SHOWING WIDENING OF ROBERT ST., ST. PAUL.
Dotted lines show present arrangement; full lines, the new arrangement.

bury, N. C., granite is somewhat above the average of these samples, as stated.

In a similar number of tests for toughness, in accordance with the specifications of the American Society for Testing Materials, only four specimens were found exceeding the minimum limit required to define those possessing a high or medium degree of toughness. It may be of interest to note that one of these samples came from Germany, two from Wales, and the fourth specimen was from a New Jersey trap block that had seen twenty-two years of service in a New York street. This was one of the worst paved streets in the city, the old Belgian blocks having the extremely rounded heads characteristic of the old type of pavement after excessive wear. The edges had not stood up under traffic and in fact the pavement presented every defect attributable to the worst of this type, although from a laboratory standpoint the stone would not only have passed the specifications proposed by your correspondent but the severe limits which have been advocated by other parties, and surpassed in toughness, resistance to wear, initial fracture under compression and ultimate compressive strength every other sample submitted to test, including the famous Liverpool material from Wales. It also met the other requirements as to hardness, being among the least hard of any tested.

All other samples tested were below, not only the high, but the medium class for toughness and in a low division, and the material from Salisbury, N. C., was again about average. The statement, therefore, that this granite is not extremely hard but that it is extremely tough is not borne out by actual tests of material as submitted to me for use in the paving of Manhattan streets.

Fifty-two samples of stone have been tested for compressive strength, and the results do not entirely bear out the claim "that a granite having a high compressive strength will invariably show a good degree of toughness, but that hardness is entirely unrelated to these two."

Complete results in regard to these tests are embodied in the annual report of this bureau for 1913, which is now in press.

The answer to the various claims and assertions in Mr. Ramsay's letter is given in the concluding paragraphs of the report he criticizes, showing that no theoretical conclusions drawn from tests of a few small cubes can take the place of actual service records.

He has made the same error as has been previously committed by others of assuming that the tests carried on by the U. S. Office of Public Roads for materials for macadam highways are necessary for a totally different class of pavement. In the Bulletin already referred to the following statement is made: "Lack of toughness and binding power renders the granite as a class unfit for use in any but the foundation courses of macadam roads." If we are to take the various tests and conclusions of this office as final in determining suitable material for stone pavements, we should therefore say that granite is not a proper material for this purpose.

A large part of the arguing at cross purposes which has arisen on this subject comes from the tendency to regard stone for pavements as if it were a manufactured material which could be brought to meet any ideal specifications or imagined desirable requirements. Even though the material used in Liverpool were of a quality very superior to that available in New York, we could not obtain the same stone here in necessary quantities by writing specifications based on tests of the Liverpool stone. This seems so obvious as to be unnecessary of statement were it not that the contrary idea has been so frequently implied.

The problem is to pave streets with granite blocks obtainable in quantities and at prices which can be economically considered. Actual service tests have shown that the greatest improvement on the old style pavements can be produced by requiring plane heads for the blocks and narrow joints, giving a street having a nearly smooth surface and avoiding the tendency to wear round on the edges, which will happen with wide joints whether the material is granite or cast-iron. Some granites are better than others, but a greater improvement can be effected by careful attention to the dimensions of the blocks than by any requirements that test samples shall exhibit certain qualities in the laboratory.

Engineers who remain satisfied with the requirement "that each contractor submitting granite blocks should furnish a certificate as to its properties" will not obtain such good results as those who add to a knowledge of the general qualities and properties of granites, information as to the exact source of all blocks, as to their complying rigidly with specifications calling for exact dimensioning,

and, finally, a close inspection of the construction of the pavement.

Very truly,

H. W. DURHAM,
Chief Engineer.

FIRE APPARATUS FOR KANSAS.

At the last convention of the League of Kansas Municipalities the Committee on Fire Protection, in its report, recommended as follows concerning fire apparatus:

We wish to recommend, as a model fire department for all cities in Kansas, one which shall contain a combination hose and pump automobile of from 75 to 90 horse power; the pump to be driven by the same engine that drives the car. The weight of the machine to be kept down to a minimum consistent with proper efficiency.

As to the manufacture of the car, we have no particular make to recommend, but will say that from information at our hands we do not think such a piece of apparatus should cost more than \$8,000. We recommend that Pompier ladders, life lines, life belts and smoke helmets be carried on this car.

With this machine should also be kept a chief's automobile of from 40 to 60 horse power, upon which should be mounted two chemical tanks of from 30 to 40 gallons capacity, each so fitted with valves that one tank can be filled while the other is being emptied, so that it can be used as a continuous chemical engine. This piece of apparatus should be purchased for approximately \$3,500. By placing the chemical tanks upon a separate automobile you have taken sufficient weight off the hose car to make it light enough that it can be run on pneumatic tires, which greatly saves the wear and tear upon the machine in running over the roads.

This model fire department could put out fires in surrounding country districts as well as in town, could draw their water from wells or cisterns as well as from a water works, could increase the pressure where the pressure is needed, without increasing the pressure on mains, and thus endangering the breakage of water mains.

The chemical car will put out 80 per cent of your fires and will do so without any water damage; thus saving the price of this extra car in a very few fires.

The committee was composed of C. H. Kerr, mayor of Independence; S. F. Goheen, mayor of Manhattan, and C. W. Green, mayor of Kansas City.

STREET CLEANING AND SPRINKLING IN ST. PAUL

Flushing and Hand Cleaning in Business District— Cleaning Macadam Streets and Alleys—Testing Route Lay-Out—Outfit Used.

In St. Paul, Minn., paved streets in the business district are flushed every day, weather conditions permitting. The amount so cleaned has a total length of 7.12 miles and an area of 153,400 square yards. Four power flushing machines are operated during two 8-hour shifts each day, the night shift working on business streets and the day shift on other streets. Last year one squeegee was operated during the day on streets having asphalt or creosoted block surface. (As a considerable amount of creosoted wood block pavement was constructed last year, two additional squeegee machines were ordered, to be put into service this year for cleaning these new pavements.) The operating crew consisted of 1 foreman for each shift, 4 or 5 drivers and 2 gutter sweepers. The power flushers clean 162 blocks in a 16-hour day, or 237,000 square yards; and the squeegee cleans 30 blocks, or 42,000 square yards, in an 8-hour day.

During 1913, flushing was done in every month of the year, except January and February. The average cost of flushing one time was 31 cents per thousand square yards. The cost of flushing for the year comprised the items of \$2,060 for gasoline, \$2,382 for repairs to flush-

ers, \$312.95 for repairs to squeegee, and \$9,133 for labor, a total of \$13,887.

During the year 49 miles of paved streets, having an area of 1,138,000 square yards, were swept by hand each day. There were employed on this work 2 foremen, 132 sweepers, 11 shovelers and 11 teams at a cost of \$332.39 per day. The average daily collection of street sweepings amounted to 120 cubic yards, and the average daily cost per mile was \$6.32, and per thousand square yards, 27 cents. The total cost per year for hand sweeping was \$1,768 for brooms, etc.; \$1,485 for superintendent and assistants, \$60,990 for sweepers, \$2,244 for shovellers, and \$5,385 for teams, a total of \$71,873.

There are 469 miles of improved streets and 20 miles of improved alleys that receive regular service, and 349 miles of unimproved streets and 269 miles of unimproved alleys which are cleaned only at the spring and fall cleaning. This service consists of removing rubbish, cutting weeds, cleaning macadam streets, flushing paved streets, hand sweeping, paper picking, cleaning alleys and the removal of ice from streets, stairways and sidewalks, and the removal of snow and dirt from bridges and the sanding of walks and bridges. Snow removal and sanding during the year cost \$7,629 for removing

The oiling organization consisted of a foreman, 5 double teams for oil and sand wagons, 3 attendants connected with the oil and sand wagons, an engineer and a night watchman at the oil plant.

The calcium chloride sprinkling was done with the use of standard sprinkling tanks. Water sprinkling cost 2.94 cents per front foot for two sprinklings a day for the season of eight and a half months, and the oil sprinkling cost 1.44 cents per square yard for one application of oil. The street railway company pays its share of the cost of sprinkling based on the ratio of the width of its right of way to the total width of the roadway.

A run-out test is made of each team in the ten districts once or twice a year to determine whether the route is well laid out, whether the idle travel is excessive, and to determine the general efficiency of the teams. These tests are made by inspectors, and in each case are of half a day duration, the inspector following the team and recording streets traveled, the time, etc. These records are plotted in the office on 600-foot scale maps showing lengths of blocks, location of hydrants, etc., and from this the productive travel and idle travel are determined.

Run-Out Test, Sprinkling District 1.

Date	Route	Tank	Total Miles Traveled	Miles of Street Sprinkled	Idle Travel		Time Actual Sprinkling	Time Filling	Full Time 5 Hours	Per Cent of Time in Idle Travel		No. of Fill'gs
					Time	Miles				Travel	Fill'gs	
6-3-13	1	63	6.934	5.447	51	1.487	2-15	1-32	4-38	18.3	18	
5-5-13	2	42	7.589	5.419	1-00	2.170	2-31	1-39	5-10	19.4	23	
5-28-13	3	31	6.261	3.740	1-15	2.521	1-57	1-31	4-43	26.5	17	
5-29-13	4	33	5.704	4.814	24	.890	2-44	1-38	4-46	8.4	20	
6-2-13	5	61	5.320	4.937	15	.383	2-34	1-49	4-38	5.4	22	
5-31-13	6	6	5.049	3.987	36	1.062	2-18	1-36	4-30	13.3	20	
5-30-13	7	7	5.494	4.161	48	1.333	2-07	1-40	4-35	17.5	20	
6-6-13	8	9	6.375	4.813	49	1.562	2-17	1-40	4-46	17.1	21	

snow from streets, \$5,137 for snow removal on street car tracks, \$762 for removing snow from sidewalks and stairs, and \$1,162 for sanding. Additional to the sums already mentioned, were payments of \$1,952 for paper picking, \$1,374 for cutting weeds, \$7,803 for miscellaneous cleaning, together with other work done by the maintenance department, such as sidewalk inspection, repairing fences and crossings, cleaning bridges, etc., which brought the total cost of such miscellaneous work up to \$30,079.

WATER AND OIL SPRINKLING.

Water sprinkling began on March 31 and continued until December 10—the longest sprinkling season yet recorded. Thirty-three miles of macadam were oiled, and 242¼ miles were sprinkled. This was an increase of 18½ miles over 1912; to provide for which increase, 11 additional teams were employed. No attempt was made to oil streets when they were damp or cold, and oiling operations rarely begin before the first of May. During the year of 1912 the city had paid 3½ cents for oil, but was required to pay 4¾ cents in 1913. In addition, the pay of the sprinkling drivers was raised from \$100 to \$115 per month, increasing the total payment for wages for the season by \$8,000. The total cost of sprinkling with both oil and water the 275¼ miles of streets in 1913 was \$118,707.52.

The organization under the sprinkling engineer consisted of a general inspector, 10 district inspectors with eight to fifteen teams each, 1 repair foreman with five men and two single teams making repairs to standpipes and wagons, 1 record clerk and 2 assessment clerks. (The cost of the sprinkling is assessed against the property owners, the assessment being made in November and collected during the following year.)

Records of all of the teams show that the total period worked during the year was 651.4 team-months, of which the actual number of days worked was 456.7 team-months, and the total days idle 194.8 team-months. The idle time consisted of rainy days and the days following when the streets were too wet to make sprinkling desirable.

In May a test was made of a Sauer auto sprinkler which had been purchased by St. Cloud, Minn., but when being delivered was detained in St. Paul for this test. This machine had a tank capacity of 1,260 gallons and cost \$6,300. The average of the tests made show that the time required to fill the tank from the city's standard 2-inch standpipes or cranes was seven minutes, the time to unload 1,200 gallons travelling at a speed of 7½ miles an hour, eight minutes. One tank load sprinkled one mile of streets for its full width. The commissioner of public works, Oscar Claussen, who conducted the test, estimated that, allowing five minutes loss of time for each tank load, 30 miles of streets could be sprinkled a day, but he believed that with experienced operators at least 35 miles could be covered. As a horse-drawn wagon covers but 5 or 6 miles, an auto sprinkler would, he believed, take the place of at least six and a half teams, the cost of which for drivers, repairs, interest and depreciation would be about \$822 per month. The estimated cost of operating the motor sprinkler he figures as \$463 per month, this including 5 per cent interest on the investment, 14¾ cents a mile for maintenance, \$80 a month for chauffeur and \$60 for leverman, and depreciation based on a life of fifteen years; this giving a total cost per month of \$463, or \$390 less than the cost of six and a half teams. After using this sprinkler for six months, the city engineer of

St. Cloud informed the commissioner of public works of St. Paul that it had distributed 2,822 tanks of water over 2,833 miles of streets, using .37 gallon of gasoline per mile. That it displaced five teams, but sprinkled more frequently than they had done. The average sprinkling per day was 34 miles of street, full width. Auto sprinklers are also used, said commissioner Clausen, by Denver, Colo., and by St. Louis.

The outfit of the sprinkling department comprises 78 Austin-Western sprinkling wagons, costing from \$220 to \$252 each; 26 Studebaker sprinkling wagons, costing from \$167 to \$232.50 each; 4 Hvass sand spreaders, costing \$330 to \$375 each; 2 Studebaker oil sprinklers, costing \$550 each, and 1 Hvass oil sprinkler, costing \$850. Also 2 oil sprinklers and 3 sprinkling wagons, which were old tanks made over by the department. During 1913 there was added 1 Studebaker automatic oiler of 700 gallons capacity, costing \$550; a Hvass Pillsbury oil spreader of 600 gallons capacity, costing \$850; 2 Hvass sand spreaders of 1¼ cubic yards capacity, costing \$375 each; and 6 Austin-Western water sprinklers of 750 gallons capacity, costing \$245 each. A calcium chloride plant was put into service at the beginning of last year and was used extensively for street sprinkling.

ST. LOUIS' NEW CITY CHARTER

Provides for Initiative, Referendum and Recall—Unlimited Right of Municipal Ownership—Board of Estimate and Apportionment—Mayor Chief Executive.

On June 30, by a popular vote, St. Louis accepted by 46,839 to 44,158 a new city charter which had been submitted to it. The voting was very close, as these figures show, and was the termination of a bitter campaign in which the new charter was strongly opposed by a considerable proportion of citizens of all classes, although the city committees of the three leading political parties endorsed it.

The adoption of this charter by the city of St. Louis will make her, it is said, the largest city with a charter providing for the initiative, referendum and recall; also the largest American city operating under a special charter framed by its citizens rather than by the legislature. The short ballot is another modern feature. A board of estimate and apportionment and board of public service are important features of the new government. In spite of these modern features, the new charter cannot be considered radical, but is probably more adequate for the present St. Louis than the charter of 1876 under which she was governed.

Under the 1876 charter the city had no power to own or operate any public utility except water works and gas works, but the new charter gives the city unlimited right of municipal ownership. Further, it authorizes the issuance of notes and bonds based on the credit, income and property of the public utilities themselves. The city is given full power to regulate present or future public utilities, and to compel extension of their facilities for service.

A short ballot is provided, the voters electing the mayor, comptroller, president of the board of aldermen and the members thereof, for four years, all being elected at large. A board of aldermen is provided, twenty-eight being nominated and elected at large, one alderman from each ward. This board will legislate only.

Any legislative officer may be removed by the board of aldermen. He is also subject to recall on petition

signed by 20 per cent of the registered voters in each of at least two-thirds of the wards of the city. This prevents sudden and temporary unpopularity in any one locality bringing about a recall election.

The people have a right to propose amendments to the charter on a 10 per cent basis for a general election and 15 per cent for a special election.

No ordinance takes effect until thirty days after its adoption. If within that time a petition signed by 2 per cent of the registered voters is filed, the taking effect thereof is postponed. If an additional 5 per cent or 10 per cent is secured within the next forty days, a general or special election will be had thereon. Full publicity for every initiative, referendum or recall provision is provided, in that any citizen may present to the city counselor, for publication at the city's expense, reasons for or against any such proposed or referred ordinance or recall proposition.

A board of estimate and apportionment is provided for, composed of the three elective officers—mayor, president of the board of aldermen and comptroller. No money can be expended except on the recommendation of this board. The mayor is the chief executive, and responsibility is centered in him. His appointments are not subject to confirmation; he is a member of the board of estimate and apportionment, and his salary is \$10,000. He may be removed by a three-fourths vote of the aldermen or by recall.

The board of public service consists of five members, all appointed by the mayor, which head an equal number of departments. Their titles are president, director of streets and sewers, director of public utilities, director of public welfare, and director of public safety. The department of the president has charge of all public work or improvements not otherwise assigned. The work under the charge of each of the others is that commonly included under such titles.

The mayor is to appoint an efficiency board of three members, not more than two of the same political party, to provide rules and regulations whereby all appointments or promotions of the city's service shall be based on efficiency, further providing that employees may be dismissed from service at any time if incompetent. All examinations are to be practical, and the board may delegate practical men to examine applicants.

No franchise can be granted for longer than fifty years, and no ordinance can be passed granting a franchise unless a report thereon is made by the board of public service and such report published. The city may acquire any franchise ten years after operation is begun thereunder, or at any five-year period thereafter, on reasonable terms and compensation.

The city may do its own public work without letting contracts therefor. Public improvements are assessed equally, with every attempt to prevent unjust or double assessment.

Under the old charter, a contractor was paid by special tax bills. To get his money he discounted these bills at the bank at 15 or 20 per cent, and this loss must be included in their estimate of the cost of the work. This extra charge was, of course, borne by the taxpayer. In addition, this provision eliminated from city work all but the large contractors with plenty of cash or credit. Under the new charter, a contractor may be paid by proceeds from the sale of bonds or in cash. Provision is made for the issuance of local improvement bonds payable out of the proceeds of special assessments, the contractor being permitted either to take these bonds or to receive cash obtained by the city by selling the same.

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CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

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JULY 9, 1914.

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Disposal of Ashes.

The method of disposing of its ashes which Scranton, Pa., is about to adopt, as told in another page, is a unique one, so far as we know, and if it works out successfully would seem to be a most excellent idea. Coal mining as universally practiced imposes many hardships upon the communities which depend upon it for their existence—the unsightly culm banks, polluted streams and dust from the breakers are a few of these—and not the least is the occasional settling of the ground over abandoned workings, whereby streets and buildings are destroyed. If ashes can be conducted into these workings at small cost and made to support the roof of the mine against settlement, this will be a more important result even than getting rid of the ashes without a nuisance. (Incidentally, why should not the mine operators be required by law to fill these abandoned workings, and dispose of the landscape-disfiguring culm by using it for this purpose?)

Few cities have coal mines beneath them to be used in this way; but many have limestone caves and crevices, and a few discharge their sewage into these. This latter is a doubtful if not a dangerous practice, but there would seem to be no objection to filling them with ashes. Abandoned quarry holes, also, are frequently used for this purpose, but there may be some cities which have overlooked this possibility.

This idea of Scranton's is an illustration of the opportunities which lie at the door of many municipalities for utilizing local peculiarities of topography, geology, climate or other conditions, if they would only do a little original thinking and not be mere followers of precedent. Standard specifications for materials and even for work are a good thing if made sufficiently flexible to allow for variations in local conditions and requirements, but standard methods in general should not be sought or tolerated. Sewage can be used advantageously for irrigating in southern California, but not in Washington. Garbage, dead animals, etc., may be left unburied in the high, dry air of Arizona, where in the absence of moisture they will dry up and blow away, but the same cannot be done without creating a nuisance along the Atlantic seaboard.

MUNICIPAL BONDS.

The market for municipal bonds still remains good—indeed it may almost be said to be eager. The purchases of such bonds this year have been quite extensive, but in spite of this good prices are being obtained. The "Bond Buyer" publishes the following list of city, county and state bonds sold during June, showing the basis of sales last month and of bonds sold by the same cities last year:

City	Basis last sale, per cent.	Basis last year, per cent.
Albany, N. Y.....	4.139	4.48
Boston, Mass.....	3.89	4.15
Buffalo, N. Y.....	4.10	4.27
Charleston, W. Va.....	4.675	4.98
Cincinnati, O.....	4.179	4.50
Columbus, Ga.....	4.512	5.00
Cuyahoga Co., O.....	4.01	5.00
Hartford, Conn.....	4.00	4.30
Lowell, Mass. (Notes).....	3.85	4.72
Milwaukee, Wis.....	4.20	4.50
Montclair, N. J.....	4.25	4.80
Memphis, Tenn.....	4.68	5.00
Minneapolis, Minn.....	4.456	4.96
Port of Seattle, Wash.....	4.876	5.00
Rhode Island (State).....	3.896	4.00
Rochester, N. Y. (Notes).....	3.50	*5.875
Salt Lake City, Utah.....	4.409	4.50
Syracuse, N. Y.....	4.153	4.40
Westchester Co., N. Y.....	4.125	4.40
Wilmington, Del.....	4.176	4.48
Yonkers, N. Y.....	4.22	4.97

* July 10, 1913.

These cities range from Massachusetts south to Georgia and west to Washington. The basis of sale ranges from 3.50 to 4.876, as compared to 4.00 to 5.875 last year, the averages last month and last year being 4.205 and 4.68 respectively.

Especially good is the showing for the first six months of this year—\$301,828,696. The next largest total for a corresponding period was in 1911, when \$275,578,950 was sold; and in only three other six-month periods has the total exceeded \$200,000,000. It will be noted that municipalities have obtained about 10 per cent more money on bonds this half-year than any previous similar period, and for the same total amount of interest if last year's rates be applied to the 1911 sales.

CITY REGISTER OF AUTOMOBILES.

The city of Pittsburg, Kan., has an ordinance requiring all motorists to register their name and the name and number of their machine with the city clerk. This is done to obtain a record for police use. No registration fee is charged, but a penalty is attached for failure to register. This ordinance has caused favorable comment in other cities of the state and will probably be adopted by some of them.

The WEEK'S NEWS

State Highway Commission for Indiana—Pennsylvania State Aid—Baltimore Road Work—Rat Campaigns Following New Orleans Suspected Plague Cases—Nation-Wide Utilities Fight Begins in Philadelphia—Following the Salem Fire—New York's New Fireboat—Commission Government's Victories and Defeats—New York Street Cleaning Methods—New City Markets.

ROADS AND PAVEMENTS

State Highway Commission for Indiana.

Indianapolis, Ind.—Indiana, which formerly had no central state governing body for road affairs, will now have a state highway commission. Governor Ralston has announced the appointment of a state highway commission to make a study of the road situation and recommend to the general assembly convening next January such legislation as it considers desirable. Besides naming five commissioners to act as the executive body, the governor appointed an advisory commission of fifteen members. Every section of the state is represented on the advisory commission. Several of the advisory commission are farmers, the governor believing that the rural districts especially should be well represented on any body suggesting road legislation. The commissioners named are: Thomas Taggart, Indianapolis; W. H. O'Brien, Lawrenceburg; Leonard B. Clore, Laporte; Addison C. Harris, Indianapolis; R. L. Sackett, Purdue University. The advisory commissioners are: Lewis Taylor, Newburg, First district; E. R. Cumings, Bloomington, Second district; Albert P. Fenn, Tell City, Third district; I. Newton Brown, Franklin, Fourth district; William F. Franklin, Danville, Fifth district; Maurice Douglas, Flatrock, Sixth district; C. A. Kenyon, Indianapolis, Seventh district; John R. Retherford, Muncie, Eighth district; D. F. Malsh, Frankfort, Ninth district; J. G. Short, Hillsboro, Ninth district; Mike Duffey, Fowler, Tenth district; Oliver Kline, Huntington, Eleventh district; William Jones, Fairmount, Eleventh district; George V. Kell, Fort Wayne, Twelfth district; Aaron Jones, South Bend, Thirteenth district. It is expected that the commission will meet soon to perfect an organization and begin its work because the time for considering the subject before the opening of the legislature is short. It is expected that the state commission will hold conferences from time to time with the advisory commission to obtain the benefit of any suggestions it may have to offer. The commission probably will hold several public hearings to which all citizens interested in the road problem will be invited. The central board will act as the executive body and the advisory board will act in an advisory capacity, furnishing information and suggestions, participating in the discussions of plans and methods, and meeting with the central body at stated times or as they may agree upon. The plans and recommendations of the commission are to be reported to the legislature of 1915 for its approval.

State-Aid Roads in Pennsylvania.

Harrisburg, Pa.—The Pennsylvania State Highway Department, in advertising for bids on State-aid contracts, points out that these contracts are not dependent on the automobile taxation money which has been withheld from the department by the action of the auditor-general and the State treasurer. These automobile license funds are intended for the construction and maintenance of State highways and can be used for no other purpose. The money which will be used for the contracts now being advertised is a portion of the legislative appropriation for State-aid roads on which form of construction the State bears half the expense, the other half being borne by the county, township or borough applying for State aid.

Road Work in Douglas County, Wis.

Superior, Wis.—Twelve miles of road costing nearly \$60,000, just started, and several miles more to cost about \$15,000, to be started soon, is the program of building for this year laid out by the county under the supervision of

C. J. Morisset, county commissioner of highways. All the work under way will be finished this year if the weather is normal. The completion of the unstarted job depends on the finances of the county which may not be sufficient to complete the work. The big jobs include two miles of concrete work—the only concreting job to be done this year. If it proves successful it will lead to additional improvements of a similar nature. Grand avenue will be macadamized at a cost of \$17,000 by Pete Bergman and L. A. Balm. Spaulding avenue for 2½ miles will be graded and culverts put in at a cost of \$5,500 by Jake Erickson. The Negagamom road will be graded four miles at a cost of \$10,000 by Berglund & Johnson. All the work done this year comes under the state-aid law which means that the county pays two-thirds and the state one-third. The state money is not paid in until the work is more than half complete. The county money is provided for at the previous annual meeting. The county will thus receive something over \$20,000 from the state.



Courtesy Newburgh (N. Y.) News.
STATE ROAD WORK IN BEACON.

At Work on State Highway Improvement.

Newburgh, N. Y.—The Spuyten Duyvil Construction Company has many men at work on the new state road in the Beacon section. This is a much needed improvement and when finished will make an excellent stretch of highway from Newburgh to Fishville. The grade will be changed in several places. The photograph shows the men breaking ground for the new road.

Contractors Rush Maryland Road Work.

Baltimore, Md.—With a continuance of the favorable weather for road building which has marked the first half of the year the State Roads Commission will, by January 1, have finished or under contract nearly all the work that can be done under the loan created by the last legislature. On January 1 there was under construction or contract 90 miles of state road at an estimated cost of \$990,000, and 29 miles of state-aided road costing \$178,000. Since then there have been let contracts for the construction of 243 miles of state road, to cost \$2,981,000, and 16 miles of state-aided road, to cost \$265,000. The policy of the roads commission is to push the work as rapidly as possible without regard to whether the work of the two years (1914 and 1915) is evenly divided. The roads commission has been fortunate in getting some of the big contractors to come in from other states. Work that it was thought Pennsylvania would take up this year was not begun, with the result that contractors looked to Maryland to keep their plants busy and some of the best equipped concerns in New York have

come to Maryland. Notwithstanding that so much work is under way, the commission is proceeding with the preparation of plans for more work, and from week to week the contracts will be advertised. Work that cannot be completed this year will be finished next year, so that when the legislature of 1916 meets the commission will have fulfilled its promise to fill in the main gaps of the 1200-mile stem, making an unbroken stretch of good roads from Ocean City, on the Atlantic, to Oakland, the county seat of Garrett, in the Alleghany mountains. There are all kinds of roads under construction, macadam, concrete and gravel, with high-class street construction in Baltimore city. The most expensive street-paving work undertaken in Baltimore city in recent years has been that of the road commission. And in addition to that there is soon to be started the great bridge over the Patapsco river at Spring Gardens, the cost of which may exceed a million dollars. There are some counties in which the roadwork had not gotten under way for the year, owing to local disputes over routes. These disputes are now being disposed of through hearings held by the commission with the result that in all these cases controversies will have been ended in the next few weeks. Then the contracts and construction will follow. There have been such controversies in Prince George's, Anne Arundel, Calvert, Dorchester, Somerset, Caroline, Hartford and Wicomico counties. The work should go on at the rate of not less than a mile a day during good weather and the reports show that to date this average is being exceeded.

Road Used Twenty-one Years Not Public.

Lebanon, Pa.—Judge Henry filed his opinion refusing the application for a writ of alternative mandamus sued for by four citizens against the highway commissioners of North Lebanon township, Isaac Mumma, John C. Steckbeck and Cyrus Winters. It was sought to secure the issuance of a writ by the petitioners to compel the commissioners to maintain and keep in repair a certain road. It was alleged that the road was not kept in proper repair and that the petitioners who reside along the road are greatly inconvenienced by the lack of such maintenance. In the answer filed by the commissioners it was averred that although the road has been open to and used by the public for the past twenty-one years, nevertheless it had never been dedicated by them and that they were therefore not responsible for the keeping of the highway in repair at the expense of the township. Judge Henry held that the contention of the highway commissioners in that the road had not been dedicated to the township by the owners was a proper one and therefore the commissioners were not responsible for the condition of the road and that the twenty-one years of public usage did not constitute a dedication of the road.

SEWERAGE AND SANITATION

Rat Campaigns in Many Cities.

Columbus, O.—Ohio is to have a rat extermination campaign. Following the receipt of a telegram from Surgeon-General Blue, of the United States health service, calling attention to the recent deaths in New Orleans, suspected to have resulted from bubonic plague, Dr. E. F. McCampbell, secretary of the Ohio state board of health, sent telegrams to health officers in Cincinnati and other Ohio river towns, warning that precautions be taken to prevent rats coming ashore from river boats, requiring patrol at gangplanks and the use of rat guards on hawsers. Epidemiologists from the department will visit the towns within a few days. The statewide campaign for extermination of rats is not a new movement, as a campaign of this kind was urged by Dr. McCampbell last year, both as a sanitary measure and as a check to economic waste. "The Ohio river is a direct means of communication with New Orleans," said Dr. McCampbell, "and the freight boats a natural means of travel for rats, the most dangerous carriers of plague. We are giving special attention to the river cities. Warnings were sent the health officers of Ironton, Marietta, Pomeroy, Middleport, Gallipolis, Steubenville, East Liverpool, Belaire, Wellsville and Cincinnati. Cincinnati has a municipal laboratory and I have asked them to examine rats caught in

that city for symptoms of plague. We have also urged the patrol of gangplanks to prevent rats coming ashore from ships and the use of rat guards on the hawsers. These guards are like large metal funnels, with the point toward the ship and the hawser passing through the center."

New Orleans, La.—State and city health authorities inaugurated the first wholesale campaign in the history of the South for the extermination of rats in order to prevent the spread of the bubonic plague. Two cases of the disease recently have been discovered in the industrial home of the Volunteers of America, in New Orleans. One man died, another is ill and 28 inmates of the place have been isolated. With the home as the center of a zone extending four blocks in every direction, the plans were for the construction of a concrete barrier around the entire area and for a rat drive towards the center. Other barriers will be erected as the warfare progresses, so that when the fall onslaught is made every rodent within the infected area will have been destroyed. Poison and traps will be used in the work of extermination, drain pipes will be screened to prevent the escape of a single rat and every expedient of scientific rat killing employed to prevent a spread of infection to other parts of the city. Health authorities stated that spread of the plague was not expected. No further cases had developed.

Charleston, S. C.—To consider measures of a precautionary nature, City Health Officer Dr. J. Merceir Green and Chairman of the State Board of Health Dr. Robert Wilson, both of whom have received communications from Surgeon-General Rupert Blue with reference to the bubonic plague situation at New Orleans, held a conference. In the campaign of two years ago a large number of rats were slain, and Dr. Green believes that in the campaign which he is about to inaugurate equally as good results will be obtained. Other measures of a precautionary nature will be taken in the effort to reduce to a minimum the danger of the dread disease appearing in this city. Dr. Manning, the health officer in charge of the Charleston quarantine station, has been apprised of the situation in New Orleans by Surgeon Blue, but as yet he has received no instructions to inspect vessels coming into Charleston from New Orleans. The health officer of New York has declared a quarantine against New Orleans and all vessels coming into that port from New Orleans will be rigidly inspected.

Polluted Water in Maryland Town.

Hagerstown, Md.—The water in the wells in the vicinity of Myersville and in the town are greatly polluted, according to Robert B. Morse, chief of bureau of the state sanitary engineering, and the water there is not fit for drinking purposes. It is said that any time an epidemic of typhoid fever may break out in that section of Washington and Frederick counties. Acting upon the report of Mr. Morse the town council of Myersville has taken steps to install a water system before winter. The impurity of water is not confined to Myersville or the surrounding section, but to all similar sections of the adjoining counties. The same condition, says Mr. Morse, prevails all over the state of Maryland. Mr. Morse recommends the installation of water systems.

May Sue Cities for Sewers After Cloudburst.

Bismarck, N. D.—Bismarck and Mandan were under six to eight feet of water when the Heart river rose following a cloudburst. Bismarck has \$50,000 and Mandan \$20,000 damage. Bismarck business men whose stores were flooded threaten to bring suit against the city for not providing proper sewers to carry off the water. Several times previously basements and streets have been flooded and much damage done, because the sewers cannot carry off the water.

New York's Baby Week.

New York, N. Y.—Of all the various activities of the department of health none has been more productive of gratifying results than the campaign directed against infant mortality. In 1904, of every 1,000 infants born in New York City, 162 died in the first year of life, while last year the rate was only 102. With approximately 135,000 births in

1913, this represents over 8,000 infant lives saved last year. The showing is still more striking when only the deaths from diarrhoeal disease are considered, for here the rate has fallen from 47 per 1,000 births to less than 23. In order to still further arouse the public and thus to effect additional improvement in this direction, Mayor Mitchel designated and appointed a committee representing the various infant welfare activities to carry on an intensive campaign for the saving of infant lives. A million leaflets printed in three languages, were distributed through the public and parochial schools, and through the agents of two large life insurance companies. Eight hundred moving picture theatres exhibited slides calling attention to Baby Week. Thousands of hanging cards were displayed by storekeepers throughout the city. A bill-posting firm donated the use of fifty large spaces on its bill-boards, and space was also donated on the sign boards of the elevated and subways. The newspapers contributed valuable assistance in the form of news articles, reading notices, etc. All the churches aided and provision was made for special sermons concerning baby welfare. Much of the educational work of the campaign centered about the milk stations, and special lectures were given there on matters of infant hygiene. The cordial response to the mayor's call was extremely gratifying.

New Sewer in Gridley, Ill.

Gridley, Ill.—The biggest public improvement made in Gridley is the big sewer which will be the start of a sewerage system that will cover the greater portion of the town. The improvement is being paid for by a general tax levy, the work now on hand to cost about \$8,000. The sewer now being laid will be 10,000 feet in length and \$14,000 more in sewer tile will be laid as soon as the town gets the necessary money. The sewerage will empty into Buck creek, south of the town. The work has been in progress for about three weeks and should be completed within another week's time. The contractors are Driscoll & O'Brien, of Decatur, who are using a ditching machine that is scooping the dirt from a nine-foot trench at the rate of about 300 feet per day.

WATER SUPPLY

Cities Plan Joining of Water Systems.

Gloucester, Mass.—Several conferences have recently taken place between the water commissioners of this city and Manchester, having in view the connecting of the water systems of the two municipalities for the better protection of each in case of a break in the water pipes. The project was suggested to the Manchester water commissioners some years ago, but the superintendent and members of the board at that time did not look upon the project with favor, thinking that Gloucester was reaping the greater portion of the benefit. The present board is understood to be more favorably inclined towards the project, as in case a connection is made the town will get the benefit of a larger water system, while Magnolia will receive protection in case of a break, as was the case recently when the great hotel section was without water for five hours. The matter came up at the last meeting of the Manchester board which, at the first town meeting, will insert an article in the warrant, and will recommend favorable action. In order to make the connection it will only be necessary to make an extension of about 150 feet on one side of the line, and 35 feet on the other. The mains in each direction are 10-inch pipe, and it is proposed to place a gate at the line between the two municipalities which can be opened in case of emergency.

Richmond Water Rates Reduced.

Indianapolis, Ind.—Deciding the first water case since its organization, the public service commission announced a readjustment of the schedule of rates to be paid by customers of the Richmond Water Works, the new schedule becoming effective June 30. The rate for 3,300 domestic consumers, using water by meter, is reduced from 25 to 20 cents for each 1,000 gallons consumed. Other meter rates are changed. The annual meter rental fee is reduced from \$3 to \$2 and a fee of \$10 heretofore charged for extending service pipes and tapping a main is eliminated entirely.

Hereafter the city will be required to pay for all water consumed because the utility act is opposed to discriminations being permitted. The commission made no change in the flat rates for domestic consumers which now range from \$3 a year for one room to \$9 a year for an eleven-room house. The water company is ordered to cease giving special rates to the Chesapeake & Ohio Railroad Company. The expense of making an examination and audit of the company's books and in making the valuation of the property amounted to \$1,244.34 and the company, by a provision of the utility act, will be required to reimburse the state for this amount. The commission fixed the value of the Richmond plant for rate making purposes at \$750,000 and held that it was entitled to earn 6 per cent, net, on the value of the property.

Settling Tank Bursts.

Benwood, W. Va.—The large settling tank at the pumping station of the Benwood and McMechen Consolidated Water Works burst completely wrecking three sides of the building and entailing a loss of about \$8,000. The tank when full held from sixty thousand to eighty thousand gallons of water, measuring 24 by 24 feet. The cause of the wreck is not known as the woodwork of the tank was in good condition. No warning was given and the top of the tank began to spread first. As the water began to escape it increased until a few remaining hoops gave away and the force of the escaping water threw the bricks in the house wall in every direction. No one was injured, although engineers Fred Haines and James Freeland narrowly escaped. The water system of Benwood was consequently put out of commission and water was not furnished for several days. Fifteen feet remained in the reservoir in case of fire.

Burst Dam Floods St. Paul Section.

St. Paul, Minn.—More than fifty families of a foreign colony living in the lowlands of West St. Paul, were driven from their homes when the large cofferdam on the Government works in the Mississippi river just above Fort Snelling broke under pressure of high water. United States engineers immediately notified the St. Paul police department, and a number of automobiles were dispatched along both sides of the river to warn residents of the lowlands. Many of the dislodged families had moved their belongings to higher ground and suffered but little damage. At St. Paul, twelve miles below the dam, the river rose nearly one foot as a result of the break. The fact that much of the flood water backed into the Minnesota river is said to have averted a greater rush of water and perhaps extensive damage. Preparations for strengthening the remaining 125 feet of the cofferdam are under way. A section of more than eighty feet of the cofferdam was washed out. The river for several days has been within about four feet of flood stage.

STREET LIGHTING AND POWER

Mayor Blankenburg Starts Nation-Wide Utilities Reform.

Philadelphia, Pa.—Proceeding on the theory that utility corporations in the big cities are thwarting municipal progress and growth by high-handed methods, Mayor Rudolph Blankenburg has started a nation-wide movement to fight these companies which has developed out of the war over electric light rates in this city. He is supported in his fight by Mayor Mitchel, Mayor Harrison of Chicago, Mayor Baker of Cleveland, and Mayor Shroyer of Dayton. Letters have been sent to the mayors of all of the principal cities urging co-operation in the movement, and a big convention is to be held in the fall to formulate definite plans. Mayor Blankenburg has concluded, from his own experiences in Philadelphia, that electric light, gas and street railway companies always put up a united fight when their interests are involved. These companies always have hired the best attorneys; they lend each other services and have a splendid system of co-operation. The information of one company can be used by all the others on request. This close system of the corporations is the model for the organization which Mayor Blankenburg hopes to build up. As announced in his letters to the mayors, he is seeking to form

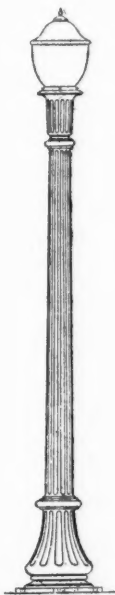
a Bureau of Public Utilities Research which shall equip itself "to give to the cities the same able assistance which the public utility companies' associations give to the public utility companies, thus in effect constituting an offensive and defensive alliance among the cities similar to that existing among the utility corporations."

The convention is to be held in Philadelphia, where the permanent organization is to be launched. There probably will be instituted a clearing house of information on which any city in the United States can draw to fight the corporations in the interest of the people. The lack of system in obtaining correlative facts, Mayor Blankenburg says in his letter, has caused the people's side of controversies with public utility corporations to be placed before the Public Service Commissions inadequately in most instances. "The equipment required for an adequate presentation of the rights and interests of the people," says the mayor in the circular letter, "involves a degree and extent of technical knowledge which is not practicable for any one city to obtain. This knowledge and information is much the same for each city, and its cumulative use would greatly add to its value. It must be borne in mind that the utility companies constitute an alliance, probably stronger than any other interest in this country. Its weakest member is never without information and assistance of every kind."

If the organization can be effected, a concerted fight will be made to fix the rates and service for public utilities on the actual cost of providing such service. It is aimed to take values of properties into consideration and to allow reasonable profits on the actual capital invested. The fight will be particularly aimed at the monopolies which charge exorbitant rates for service. Whenever a question effecting rate or service regulation of public utility corporations shall be presented in any city, according to this plan, the ordinary citizen will have the use of lawyers and agents just as good as those provided by the corporations, and will go into court with assurance that he will not be swamped with argument and power. There will be small meetings prior to the Mayors' Fall convention. Money has been provided by persons who are interested in the movement. The cities, it is argued, can easily maintain the Bureau of Research by mutual assessment after it is under way. Mayor Blankenburg in an interview emphasized that the organization would be non-partisan.

Light Post Competition in Sterling, Ill.

Sterling, Ill.—The Board of Local Improvements held a competition for the new ownership lighting system of the city. The board limited the range by having a model post made and asking bids on various designs approximating the model. There were four bidders and the Sterling Foundry Company was awarded the contract at \$15.75 per post. The board chose the Holophane type top at \$6.75, making the total cost per post \$22.50. The design selected is a combination of a number of designs submitted by the Sterling Foundry Company. The post will be eleven feet to the bottom of the globe and the base will be twenty inches in diameter. The Electric Construction and Machinery Company, who have the contract for the installation, will commence work as soon as the posts are delivered and the cable, made by the Simplex Cable Company, arrives.



Springfield, Mo., Wins Rate Fight.

Springfield, Mo.—The city is victorious in the light rate case against the Springfield Gas and Electric Company in a ruling made by the public service commission at Jefferson City. Reductions total approximately 37 per cent. The new schedule is effective July 1, 1914. The rates are lower than those asked for by the city in the Culler-Jones ordinance wherein rates that the company should charge were set forth. The maximum rate for general and residence lighting in the ordinance was 9 cents. The ruling provides

for an 8-cent maximum. The schedule fixed by the commission provides, among the other rates, the following:

General lighting, 8 cents a kilowatt hour for the first thirty hours and 5 cents for the next sixty hours and 3½ cents for additional use; residence light, 8 cents per kilowatt hour for the first thirty hours and 5 cents for additional use. A discount of 10 per cent. is allowed on bills for residence and general lighting if paid before the tenth day of each month and 5 per cent. on large lights and power.

The ruling specifies that 7 per cent. is an adequate return for the company to make and under valuations of the holdings of the company in which reductions are made, the total reductions will amount to 37 per cent. The commission fixed these minimum rates for a period of three years from July 1, 1914:

Street lighting, per inclosed arc lamp per year, \$60; per incandescent 40-watt lamp per hour, \$6; residence light, 8 cents per kilowatt hour for the first thirty hours and 5 cents for additional use; general lighting, 8 cents a kilowatt hour for the first thirty hours and 5 cents for next sixty hours and 3½ cents for additional use; large consumers of light and power, 7 cents a kilowatt hour for first thirty hours, 4 cents next thirty hours, 3 cents for next sixty hours and 2½ cents for additional use.

The complaint against the Springfield Gas and Electric Company and the Springfield Traction Company alleged that the defendants wrongfully and conclusively so intermingle their service, business and dealings with each other and with consumers and patrons that they are able to, and actually do discriminate in favor of some over others, the exact method of which is unknown to the complainants.

FIRE AND POLICE

New Fireboat Tested.

New York, N. Y.—Mayor Mitchel and Fire Commissioner Robert Adamson, accompanied by several other city officials and guests, made a trial trip up the Hudson on the new fireboat the William J. Gaynor. The mayor and the fire commissioner when they returned said they were greatly pleased at the showing the new boat had made. The new craft is the smallest of the fire fleet, but in many respects she is more powerful than any of the other boats. The contract calls for a speed of twelve miles an hour, but the boat made a mile in three minutes forty seconds with the tide, or at a rate closely approaching sixteen miles an hour. Against the tide she did more than twelve miles an hour. The pumps on the new boat worked well, and at the end of the trial, which included throwing streams, turning in small space, and general manoeuvring, Commissioner Adamson said the craft would meet every requirement and would be accepted. The pumps are of centrifugal type, run by two turbines of 600-horsepower each. The hull of the boat is of steel and was built by the Elizabeth Shipbuilding and Dry Dock Company, of Elizabethport, N. J. She is 121 feet over all in length. Her breadth of beam is 25 feet and the depth of the hold 14 feet. She is equipped with four watertight bulkheads, three fresh water tanks of a total capacity of 8,000 gallons, and a coal bunker holding 38 tons. The principal fire-fighting appliances on the deck are two turrets amidships, a water tower and a nozzle on top of the pilot house. The turrets are equipped with nine 3½-inch discharge gates and two nozzles mounted on platforms over the turrets. The water tower stands aft and reaches 26 feet above the deck. The life-saving apparatus consists of a 14-foot lifeboat with capacity for seven persons, twelve life preservers, two life rings and one 8-foot life raft with capacity for six persons. The boat cost \$118,000.

In the Wake of the Salem Fire.

Salem, Mass.—South Salem is devastated—10,000 people homeless, 6 dead, 9,000 unemployed and property to the value of \$10,000,000 lost as a result of the fire which raged over Salem two weeks ago. Following the extinguishing of the flames the militia was strengthened to 1,000 men and people were not allowed to go past the lines without permission. Massachusetts city officials and cities all over the country have taken relief measures and funds, food, clothing and shelter are being rushed to the afflicted city. South Salem's water supply is absolutely ruined and no water or gas is obtainable. The insurance of sanitary conditions in the camps established for the homeless was the most immediately pressing problem which confronted those in charge of the relief work in the fire stricken city. Officials

of the state militia and of the state board of health co-operated in this work. Two official camps were in operation, and preparations were made for the establishment of a third, into which could be brought many persons at present scattered in various open places in the city. Every precaution was taken to prevent a spread of disease. The board of health denied a scarlet fever outbreak, but admitted four patients suffering with this disease were at large. In each of the tents provided for shelter there were four cots. In some cases nine or ten persons occupied a single tent. The militia found no difficulty in maintaining order throughout the nights. There was no attempt at looting, and only two arrests for any cause were made. Following the general alarm many nearby Massachusetts towns sent out their motor apparatus. The Salem fire being the first Massachusetts conflagration of sufficient size to necessitate the assistance of the fire fighters of many communities since the general advent of motor-propelled apparatus, the response of motor apparatus within a radius of 15 miles around Boston was significant. Revere sent combination A, hose and chemical wagon, motor driven. Chelsea sent engine 2, a big motor pumping engine and the combination, hose and chemical. Medford sent combination D, motor-driven hose and chemical, with eight men. Winchester sent engine and combination hose and chemical, both motor driven, the former towed by an automobile truck. Stoneham sent one combination motor-driven truck. Malden sent combination A, hose and chemical, motor driven; engine 1, horse drawn. Wakefield sent an auto combination. Reading sent combination A with eight men. Somerville sent an auto engine and an auto combination wagon.

Install New Alarm Board.

Newburgh, N. Y.—The new fire alarm switchboard purchased by the city from the Star Electric Co., of Binghamton, at a total cost of about \$2,000, has been installed in

the city hall and put into operation under the supervision of Fire Alarm Superintendent Alba H. Kellogg. The new switchboard divides the city into six circuits, where before there were but two circuits and the whole system is simplified. Whenever defects occur in the system it will now be possible to locate them almost immediately because of the smaller divisions. A repeater, which will eliminate the possibility of one alarm interfering with another, will also be set up in connection with the system.

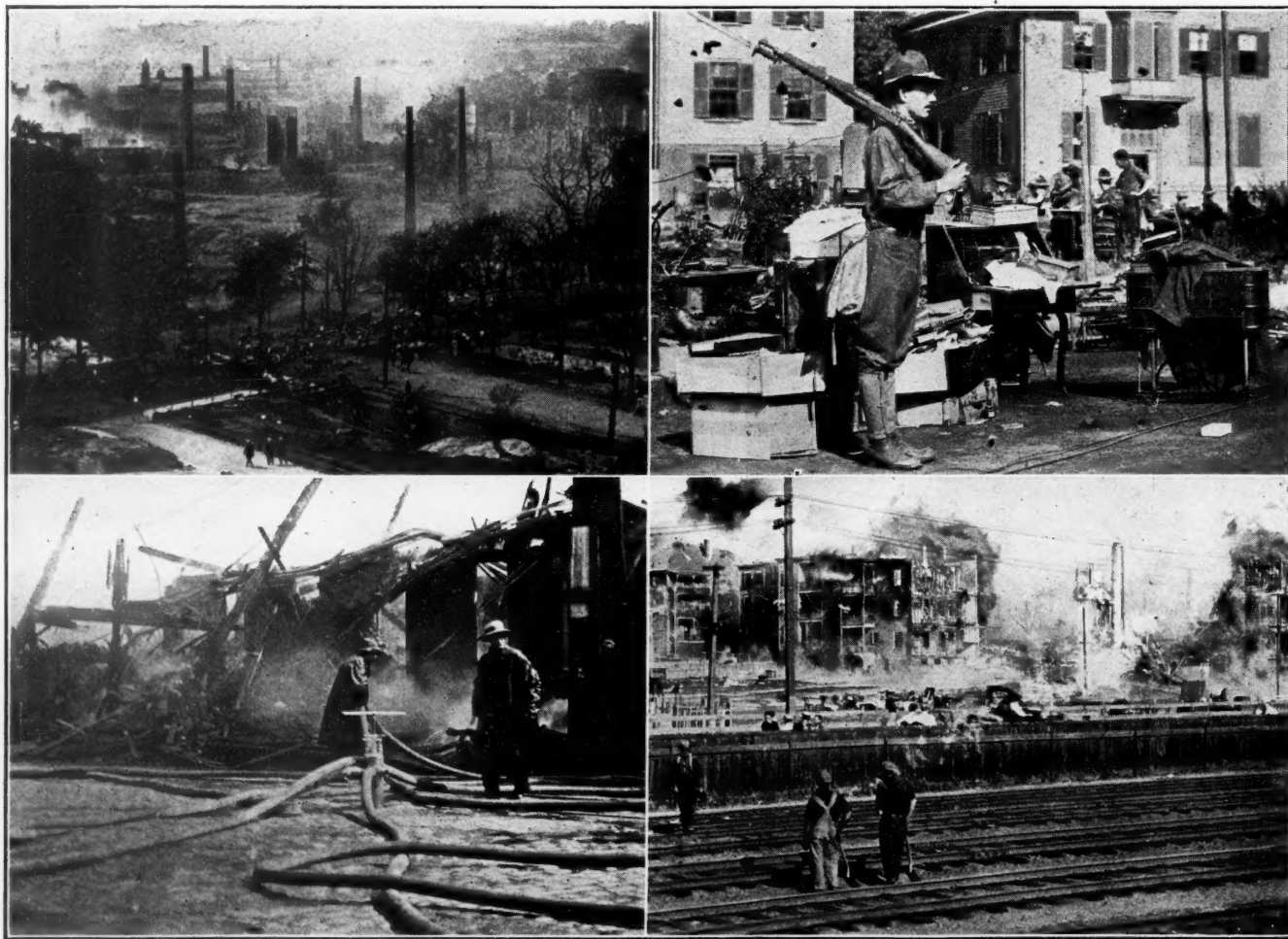
MOTOR VEHICLES

First Boston Motor Apparatus Arrives.

Boston, Mass.—One gasoline engine, two tractors and a combination chemical engine and hose wagon have arrived for the Boston department. The gasoline engine and the tractors are the first of their kind to be installed in Boston. The gasoline engine is a twelve-cylinder engine and is capable of pumping four heavy streams at a time. The apparatus will be installed at the house of Engine 11, East Boston. The two tractors will be used on engine 37 and engine 19. These pieces of fire apparatus form part of a consignment of seven pieces ordered from the American La France Fire Engine Company at a cost of \$41,000.

Motorizing Village Departments.

Rumson, N. J.—Two motor driven combination chemical and hose carts have just been delivered to the Borough of Rumson, N. J., by James Boyd & Bro., Inc., Philadelphia. One machine is for the Oceanic Fire Co. and the other for the Rumson Fire Co. No. 2. The cars were driven over the road from the factory, a distance of over 100 miles, with a load of ten men on each car, at an average speed of 28 miles an hour. The trip was made without a hitch of any kind. The motor worked perfectly throughout the run. Mayor John M. Corlies and councilmen and



Courtesy Lynn (Mass.) Daily Item.

SCENES OF THE SALEM FIRE; A PANORAMIC VIEW; MILITIA GUARDING SAVED HOUSEHOLD GOODS; CLOSE WORK; THE BURNING TENEMENTS.

representatives of Oceanic and Rumson fire companies rode with the machines from Philadelphia. The splendid showing of the trucks caused favorable comment from all the passengers and Mayor Corlies expressed himself delighted with the new machines. Upon their arrival in Rumson the cars were the occasion of many festivities. They are each equipped with double 35-gallon chemical tanks and the regular chemical equipment. Both have specially designed motors and are the new standardized models of the Boyd company.

Chemical Motorized.

Norfolk, Va.—Two thirty-five-gallon chemical tanks have been placed on a speedy automobile chassis. The fire committee, under Chairman C. W. Doughtie, purchased from the Reo Motor Company a motor and chassis, with wheel base of 130 inches, and on this placed a specially constructed body built in Norfolk from plans adopted by the committee. The combination truck carries the two chemical tanks two hand extinguishers, 1,200 feet of 2½-inch hose, axes, buckets, hooks and two complete sets of ladders, and is capable of making a speed of fifty miles an hour. Completely equipped, the apparatus has cost the board less than \$2,000.

GOVERNMENT AND FINANCE

Commission Rule in New Jersey.

Trenton, N. J.—Although the commission form of government for cities has been in operation in New Jersey less than three years, over 700,000 persons—nearly one-third of the residents of the state—live in cities having the new form of administration. In all there are twenty-three cities and towns and one township so governed in this state. According to the last census, the New Jersey cities which have tried out the new idea have a combined population of 704,661. The principal cities so governed are: Jersey City, Paterson, Trenton, Passaic, Atlantic City and Orange. At the present time there is an agitation being promoted to give Newark, the twelfth largest city in the United States, commission government. Should this city eventually be brought into line, nearly one-half the population of New Jersey, over two and a half millions at the last census, would be living under the new system.

Two Defeats for Commission Government.

Olean, N. Y.—The proposed commission-manager charter for the city of Olean was defeated at a special election by a majority of 255 in a total vote of 2,500. The Citizens' Charter Committee, backed by the Chamber of Commerce, made the fight for the charter. The workingmen were influenced against the charter by statements that its adoption would mean higher taxes. The proposed charter contained provisions for the preferential ballot, the initiative, and the referendum. It originally contained the recall, but this had to be taken out before the State Senate would pass the bill. The charter provided for the election of five commissioners, they to hire a city manager to administer the affairs of the city. Five representative business men out of twenty-one candidates were chosen, but the charter having been defeated they will not take office.

Chillicothe, Mo.—At a special election to vote on commission form government, the measure was defeated by 107 votes, 457 being cast against the measure and 350 for it.

St. Louis Adopts New Charter.

St. Louis, Mo.—By a majority of about 1,787, the new charter for St. Louis has been carried. The new charter radically changes the city government by reducing the number of elective officers through increasing the power of the mayor, substituting a one-house municipal assembly for the present two-chamber body and concentrating much of the administration work in a board of public service. The legislative powers will rest in a board of twenty-eight aldermen and a president, all elected at large, the aldermen to be nominated by wards. The recall, initiative and referendum are also embodied in the charter. Initiated ordinances may, however, be repealed by a two-thirds vote of the board of aldermen one year after adoption.

STREET CLEANING AND REFUSE DISPOSAL

City Accepts Destructor Plant.

Paterson, N. J.—Following the report of Commissioners Milson and McCrystal that during the past year the destructor plant had exceeded expectations and had proven entirely satisfactory, the Board of Works accepted the plant of the Destructor Company of New York. Street Commissioner Taylor presented a report showing the amount of refuse burned during the past month. Expert engineers have tested the plant. Under the terms of the contract, made in January, 1912, all provisions of the contract, including the operation for one year, beginning April 16, 1913, have been fulfilled. In the last six months the plant has been operated with two men per shift of eight hours, and since the official test of the plant complied with the contract, the Board of Works could take no other action. For the past year practically all of the garbage and refuse collected by the Paterson Sanitary Company has been destroyed. The average daily capacity of the plant is placed at 40 tons, and on many occasions this has been exceeded without injury to the working. During the six months' test a number of changes, which tended to make an improvement, were installed by the company at its own expense. Under the terms of the contract the city has practically paid the entire \$85,000, but there is still one payment due, and this will be paid, now that the destructor plant has been officially taken over by the city. Within a few days Street Commissioner James E. Taylor will be placed in charge of the plant, and it is expected that the city may operate it with two men per shift, and thus dispose of all the garbage and refuse collected in the city.

Dayton Begins Dumping of Garbage.

Dayton, O.—Dumping of the city's garbage in the gravel pit at Johnson's Station has been started. The work was done largely by workhouse prisoners, eleven of whom were assigned to the job. According to present plans, it has been found necessary to wheel the garbage from the car to the gravel pit, a distance of a few hundred feet, but the C. & D. Railway Company has signified its willingness to construct a spur track so that the use of wheelbarrows may be discontinued after this is completed. Attorney Eugene Kennedy, who represents the property owners in the locality in which the dumping is being done, stated to City Manager Waite that no action would be taken to prevent the temporary deposit of the garbage there unless it is found to be dangerous to the health and safety of the community. The prisoners who were assigned to the work of hauling the garbage from the car complained bitterly, and it is believed most of them, who were vagrants, will give Dayton a wide berth in the future.

The Cost of Street Oiling.

Canton, Mo.—In response to an inquiry from Mayor Moorehead, of Keokuk, Ia., Mayor Millspaugh, of Canton, gave some figures concerning the cost of oiling Canton streets. The city first used an 8,000-gallon car of oil on the business streets, which are 66 feet wide, and with this car oiled twelve blocks, including the street intersections, all at a total cost of about \$315, a little less than \$27 per block. The city has just finished applying a 10,000-gallon car in the residence section. In some blocks, where grass grows in the gutters, the cost per block will not exceed \$15 to \$16; on the blocks that oil from gutter to gutter, it will cost about \$27 per block. The work is being done by the city, under the supervision of the marshal. The city owns the sprinkling wagon, for which it paid \$40. The oil costs about 3¼ cents per gallon, delivered to Canton.

New York's Street Cleaning Methods Antiquated.

New York, N. Y.—The street cleaning department has stood practically still since the days of Col. Waring in 1897; it is far behind the departments of other cities, and its equipment is old and in very poor condition, according to a report received by Mayor Mitchel from Street Cleaning Commissioner John T. Fetherstone. "The open ash can,

partly covered garbage can, open ash cart, open water front dump, and open system of refuse disposal are all in full operation, as they were seventeen years ago," the report says, "although the people of the city have voiced time and again their demands for better street sanitation. Radical changes in equipment and methods of cleaning have been devised and have been presented to the Board of Estimate for approval." The report says that 24 per cent. of the employees of the department have been charged with violation of the rules. The deputy commissioners have heard 1,655 charges and 172 employees have been dismissed in four and a half years. "In a properly managed organization no such conditions should exist," the report adds, "and the contrast leaves no doubt of the deplorable state of the department." Although no radical changes in personnel and equipment can be made this year, the following improvements are recorded in the report:

An economical cover for ash and garbage cans has been found successful. While no provision was made in the budget for this improvement, transfers from other funds saved in other ways will allow a number of carts to be covered as a temporary expedient, pending the installation of automobile equipment. A new method of hose flushing has been tested and is now in progress, with the co-operation of Water Commissioner Williams. A much more extensive schedule of streets to be flushed is in operation, and if the water supply proves sufficient during the summer all streets in need of washing will be flushed three times a week.

MISCELLANEOUS

New Municipal Markets.

Pittsburgh, Pa.—Mayor Joseph G. Armstrong and Public Works Director Robert Swan have let the contracts for the erection of the new market house. The total of the present contracts is \$250,269. The construction of a bridge between the two market buildings and other extensions already planned will add more than \$50,000 to the cost, so that when completed the market house will cost Pittsburgh more than \$300,000.

Gary, Ind.—Gary's first municipal market has been opened. Mayor R. O. Johnson, who fathered it and assisted in the opening, made the first purchase, a dressed chicken.

Topeka, Kan.—A success instead of a failure, as first predictions pointed, the municipal market was the busiest place in town when it opened and it is to be open very day in the week. Seven wagons were drawn up to the curb in the shade of the city building. A table in the mayor's office was littered with a pile of pink and green rhubarb. Organized to eliminate the middlemen, the market has named prices to delight the soul of the Topeka housewife.

Chattanooga, Tenn.—Chattanooga's new municipal market house is now assured. Contract for the remodeling of the present police station into a central market has been let by the board of commissioners to D. F. Brandon. The estimated cost is \$13,500. It is believed that the market will lead to a general reduction in the cost of green vegetables locally, and at the same time keep in Chattanooga thousands of dollars which now go to truck farmers in other sections.

Begin Burning of Signboards.

Baltimore, Md.—Marking the first actual step in ridding Maryland of billboards, a wholesale destruction of signboards along highways is in progress under the general supervision of the State Forester, F. W. Besley. The onslaught on the offensive advertising boards and placards is state-wide, and it is estimated that fully 3,000 persons are engaged in it. This number includes volunteer wardens and Boy Scouts, all of whom are equipped with badges indicating that they have been duly authorized to take part in the work. The signs that will fall before the progress of the anti-billboard crusaders are those that have been put up along the public roads, nailed to trees or outbuildings and fences on private property without due authority. Those that are displayed on leased space will not be disturbed. While the law authorizing this campaign makes it inclusive of "any public highway," no attempt will be made at present to clear the streets of the city of the signs.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Use of City Scales.

Brittingham & Hixon Lumber Co. v. City of Sparta, et al.—A city, by ordinance, requiring all coal sold to be weighed on its scales before delivery, must keep them in order, and a man in charge at all times, except Sundays and holidays, when coal is customarily delivered; and, when in rush seasons and in exceptional cases deliveries must be made outside usual working hours, in order to provide fuel for those in immediate need, the city must provide the means of weighing, or penalties for failure to so weigh cannot be exacted.—Supreme Court of Wisconsin, 147 N. W. R. 634.

Sewer Contract—Engineer as Inspector—Decision.

Algate v. City of Lansing.—Under a contract for construction of a sewer for a city, designating its engineer as inspector to have charge of and supervise the construction, providing that all materials must be approved by him, and that his orders are to be obeyed in all matters pertaining to workmanship or material, "subject to these specifications," the engineer is not made an arbitrator between the parties to the extent that his decision is binding and conclusive, to the exclusion of an appeal to the courts for an adjudication, as to whether the material furnished by the contractor complies with the specifications.—Supreme Court of Michigan, 147 N. W. R. 560.

"Special Assessment"—Distinguished from General Tax.

City of Detroit v. Weil, et al.—"Special assessments" are a peculiar species of taxation, distinguished from the general burdens imposed for state and municipal purposes, made upon the assumption that a part of the community is specially benefited by enhancement of the value of property peculiarly benefited by a public improvement; in general, they can only be levied on land in a district created for the express purpose of the levy; payment of such assessments may be enforced by the summary method allowed for the collection of taxes, and they must be apportioned by some reasonable rule among those on whose property it is levied.—Supreme Court of Michigan, 147 N. W. R. 551.

Tax Collection—Contract—Omitted Property.

City of Richmond v. Clifford.—A contract consisting of a proposal to discover omitted property and place it on the tax duplicate, and the acceptance of the city changing the phraseology to "search for and discover property that has been secreted and omitted from the tax duplicate," covered property which had been omitted because of a misconception of the law, though it had not been secreted; as the acceptance did not change the contract, as one for the discovery of omitted property, whether the omission arose from a misconception of the law or from secretion.—Supreme Court of Indiana, 105 N. E. R. 385.

Paving—Contracts—Construction.

City of New York v. Brooklyn Alcatraz Asphalt Co. et al.—Where a street paving contract with the city provided a guaranty for five years, required repairs, and that, just prior to the expiration of the guaranty period, the entire work should be inspected, and, if any blocks should be found to be disintegrated, broken, or otherwise damaged, they should be replaced, the contract would be construed as guaranteeing only against defects arising through faulty performance of the work. Where a street paving contract only bound the contractor to repave the street at the end of a five-year guaranty period, in case the same became necessary, because of faulty original performance of the work, and not at all events as claimed by the city, the latter was not entitled to recover damages for the contractor's failure to make repairs involving replacement of the paving at the end of that period, in the absence of proof that it was rendered necessary through faulty workmanship or the use of defective materials in the laying of the original pavement.—Supreme Court, Trial Term, 147 N. Y. S. 840.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals.

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS.

Highway. The Asheville-Charlotte. By N. Bruckner, Secretary Asheville Board of Trade. Ill., 2 pp., Southern Good Roads, June, 1914. 10 cents.

The Highways of Panama. By H. W. Durham, Chief Engineer in Charge of Highways, Manhattan, New York City. 4 pp., Better Roads and Streets, June. 15 cents.

Queens Boulevard Improvement, Borough of Queens, New York City. By F. W. Scutt, Chm., Queens Boulevard Committee. Ill., 1 1/4 pp., Good Roads, June 6. 10 cents.

Roads in Arizona and the "Electric City" Phoenix. By H. Welch. Ill., 3 pp., Better Roads and Streets, June. 15 cents.

Scenic Highway between Tryon and Saluda. By S. Edmonds. Ill., 2 pp., Southern Good Roads, June, 1914. 10 cents.

The Hickory Nut Gap Road. By J. H. Pratt, State Geologist. Ill., 3 pp., Southern Good Roads, June. 10 cents.

Road Carpeting in Surrey. Bituminous carpets for Sutton Urban District. 1 1/2 pp., The Surveyor, June 19. 40 cents.

Road Maintenance, The French System of. Synopsis of paper by J. de Pulligny, chief engineer, before American Society of Civil Engineers. 3 1/2 pp., The Canadian Engineer, June 25. 10 cents.

Queene Anne Boulevard, Seattle. To make pleasantly accessible one of the highest view points of the city; supported by concrete retaining wall forty-six feet high; appliances and methods of construction. Mr. Claude A. Osier. Ill., 3 pp., Municipal Journal, July 2. 10 cents.

Road Improvements in Bell County, Tex. 1/2 p., Municipal Journal, July 2. 10 cents.

Paving in St. Paul. Department equipment and its cost; cost of asphalt repair plant and of work done by it; brick and stone repairs. 1 1/2 pp., Municipal Journal, July 2. 10 cents.

Expenditure, Road Maintenance. By a municipal engineer. 1 p., Municipal Journal, London, June 26. 10 cents.

A Tunnel Street in Pittsburgh. Ill., 1/2 p., Municipal Journal, July 2. 10 cents.

Politics and Inefficiency in Street Paving. By E. S. Hanson. Ill., 3 pp., The Contractor, July 1. 20 cents.

Pavement Deterioration Along Street Car Tracks. Who is Responsible for. Upon the decision of the Lincoln Avenue case, pending in Chicago and involving contractors' guarantees, thousands of dollars depend. By P. E. Green, Consulting Engineer, Chicago. Ill., 2 pp., Engineering Record, July 4. 10 cents.

Method of Fixing Time for the Performance of City Contracts for Street Improvements. Paper by G. L. Bennett, M.M.E., Efficiency Engineer, Board of Estimate and Apportionment, before the Municipal Engineers of City of New York. Ill., 4 1/2 pp., Canadian Engineer, July 2. 10 cents.

Shall the United States Build Highways? By C. H. Claudy, National Highway Association. Ill., 1 1/4 pp., Southern Good Roads, June. 10 cents.

Road Revenue and Bond Issue in North Carolina. By H. M. Barry, Secretary North Carolina Geological and Economic Survey. Ill., 1 1/4 pp., Southern Good Roads, June. 10 cents.

Special Problems in the New England States. By D. H. Winslow, U. S. Supt. of Road Construction, Office of Public Roads, Washington, D. C. 2 pp., Better Roads and Streets, June, 1914. 15 cents.

Organization, State Highway, in Connecticut. Ill., 3 1/2 pp., Engineering News, June 18. 15 cents.

Highway Legislation. Paper before First Canadian and International Good Roads Congress. By W. A. McLean, Provincial Commissioner of Highways for Ontario. 2 3/4 pp., The Canadian Engineer, June 4. 10 cents.

Achievements of Philadelphia Highway Bureau for 1913. Commissioner Connell reports progress made by new engineering administration; more complete records; improved granite pavements and resurfacing by city forces. Ill., 1 1/2 pp., Engineering Record, June 13. 10 cents.

Lot Lines, Computation of, on Curved Streets. By P. H. Skinner, Chief Computer, District of Columbia. 1 1/2 pp., Engineering News, June 25. 15 cents.

Paving Experiments at Oshkosh. 1/2 p., The Contractor, June 15. 20 cents.

Road Designing. Paper by R. A. Meeker, State Highway Engineer of New Jersey, before the First Canadian and International Good Roads Congress. 1 p., Good Roads, June 6. 10 cents.

Paving Methods in Cleveland, Ohio. Report of Municipal Committee of the Chamber of Commerce of Cleveland after study of paving situation. 1 1/4 pp., Good Roads, June 6. 10 cents.

Modern Highway Construction; Maintenance and Equipment. By G. D. Steele. Ill., 3 1/2 pp., Better Roads and Streets, June. 15 cents.

Types of Floors for Light Highway Bridges. Suggestions from annual report of the Illinois State Highway Commission. 1 p., The Canadian Engineer, June 25. 10 cents.

Curb and Gutter Construction in Washington, D. C. Ill., 1/2 p., Engineering and Contracting, June 10. 10 cents.

Curb Failures at Concrete Crossings. Damage done by expansion and contraction of sidewalks in Chicago suburb and discussion of remedies. By John Berg, Chicago. Ill., 1 p., Engineering Record, June 27. 10 cents.

The Testing of Paving Materials. Abs. of paper by H. B. Pullar before the Michigan Engineering Society. 1 1/2 pp., Good Roads, June 6. 10 cents.

Classification of Pavements and Bidding Form. Department of Public Improvements, Omaha, Neb. Ill., 1 1/2 pp., Engineering News, June 11. 15 cents.

Asphalt and Bituminous Concrete Pavements in Washington, D. C. 1 1/2 pp., Engineering and Contracting, June 10. 10 cents.

New York Asphaltic Highways that have Made Good. By D. T. Pierce of the Barber Asphalt Co. Ill., 2 pp., The Highway Contractor, June, 1914. 10 cents.

Brick Roads, The Economy of Vitrified. Paper by W. P. Blair, Secretary, National Paving Brick Manufacturers Association, before the First Canadian and International Good Roads Congress. Ill., 3 pp., Good Roads, July 4. 5 cents.

Bituminous Road Materials. Report of Committee of American Society of Civil Engineers. Graphic census; construction materials and methods; maintenance. Ill., 2 pp., The Highway Contractor, June, 1914. 10 cents.

Testing Bituminous Material. By J. E. Myers, Chief of Testing Department, N. Y. State Highways. 1 p., The Highway Contractor, June, 1914. 10 cents.

Asphalt Specifications and Bituminous Macadam Construction. By J. R. Graney, Sales Mgr., The U. S. Asphalt Refining Co. Ill., 2 pp., The Highway Contractor, June, 1914. 10 cents.

Modern Bituminous Surfaces and Pavements. By Prof. A. H. Blanchard, of Columbia University, before the First Canadian and International Good Roads Congress. 3 pp., Contract Record, June 10. 10 cents.

Methods and Cost of Constructing Tamped Earth Base Bituminous Macadam Pavements in Southern California. By A. Hoar, C. E. Ill., 2 3/4 pp., Engineering and Contracting, July 1. 10 cents.

Concrete Roads Vs. Foundations. Use of concrete as a surface material under horse and automobile traffic. Advantages and disadvantages; difficulty of repairing. By Maj. W. W. Crosby. 3 pp., The Contract Record, June 17. 10 cents.

Experiment in Constructing 12 Miles of Concrete Roads in Eight Months. 2 pp., Engineering and Contracting, June 10. 10 cents.

Specifications for Concrete Pavements. Proposed by American Concrete Institute and recommended by National Conference on Concrete Road Building; one course and two course. 3 1/4 pp., Municipal Journal, July 2. 10 cents.

Hydraulic Concrete Roads. By S. Whinery, Mem. A. S. C. E. 2 3/4 pp., Good Roads, July 4. 5 cents.

Paraffin Bodies in Coal-Tar Creosote and their Bearing on Specifications. Paper by S. R. Church and J. M. Weiss before the American Association for the Advancement of Science. 1 1/4 pp., The Surveyor, June 5. 40 cents.

Earth and Gravel Road Maintenance. Ill., 2 pp., Good Roads, June 6. 10 cents.

Macadam Record Construction of Water Bound Experience of Benton County, Washington, under limitations of area and valuation. By C. D. Walter, Co. Engineer. 1 p., Pacific Builder and Engineer, June 13. 15 cents.

Repairing Macadam in Mercer County. Trap rock road worn out after twelve years' service; resurfaced with trap, with Glutrin binder; method of construction. Ill., 1/2 p., Municipal Journal, July 2. 10 cents.

Vitrified Block, Method and Cost of laying a Pavement in Ft. Worth, Tex. By E. W. Robinson, C. E., with A. J. McKenzie Construction Co. Ill., 2 pp., Engineering and Contracting, June 10. 10 cents.

Sand Clay and Top Soil Roads for North Carolina. By J. H. Pratt, State Geologist. Ill., 5 1/2 pp., Southern Good Roads, June, 1914. 10 cents.

Gravel, Standard Abrasion Test for. Employed by the Ohio State Highway Department. By A. S. Rea, Engineer of Tests, Ohio State Highway Dept. Ill., 1 1/4 pp., Good Roads, June 6. 10 cents.

Oil Road, The Use of Asphaltic. By W. N. Frickstad, Asst. City Eng., Oakland, Cal. 4 1/2 pp., Pacific Municipalities, June. 25 cents.

The Fallacy of Oil as a Binder. By W. C. Hammatt, City Engineer, Hillsborough, Cal. 1 1/2 pp., Pacific Municipalities, June. 25 cents.

Refined Tar, Road Construction in Massachusetts with. By P. P. Sharples, of the Barrett Mfg. Co. Ill., 3 pp., The Highway Contractor, June, 1914. 10 cents.

The Use of Hydrated Lime in Concrete Road Surfaces. 2/3 p., Engineering and Contracting, June 10. 10 cents.

Fast Traffic, its Effect on Roads, and the Remedy. 1 p., The Surveyor, June 19. 40 cents.

SEWERAGE AND SANITATION.

State Boards of Health. Name and composition of body serving in this capacity; names and titles of chief officers of board and of official in charge of its sanitary engineering functions, including all states and insular possessions. 1 1/2 pp., Municipal Journal, June 18. 10 cents.

Small Sewerage System, Rapid Construction of a, by Trenching Machines. By C. P. Chase, Manager, Iowa Engi-

neering Co. Ill., 1 p., Engineering News, June 25. 15 cents.

Sewage Farm, Pasadena's. City Auditor's report, showing success of project. ¼ p., Municipal Journal, June 18. 10 cents.

Storm Water Sewers, Procedure in Designing New and Relief, in Cincinnati, Ohio. Curves and tables. 4 pp., Engineering and Contracting, June 3. 10 cents.

Notes on the Design and Construction of Intercepting Sewers with Special Reference to Minimizing in Filtration. 1 p., Engineering and Contracting, July 1. 10 cents.

The Main Drainage and Sewage Disposal Works Proposed for New York City. Ill., 3½ pp., Engineering and Contracting, July 1. 10 cents.

Sewer Excavation with Revolving Shovel. Illustrating an extremely efficient method of operation with an up-to-date outfit. Ill., 2 pp., The Excavating Engineer, June, 1914. 10 cents.

Discharge Sewer Outlet, Laying a 24-in. Cast-Iron Multiple, Vincennes, Ind. By R. C. Wheeler, Resident Engineer. Ill., 1¼ pp., Engineering News, June 11. 15 cents.

Materials for Large Sewers. Historical comment on materials thus far employed and editorial consideration of the segment block. ½ p., Municipal Journal, June 18. 10 cents.

Vitrified Segment Block Sewers. Experiences with this construction in Brooklyn, N. Y.; Torrington, Conn., and Louisville, Ky., described respectively by E. J. Fort, Chief Engineer; R. W. Burks, First Asst. City Engineer, and C. A. Patterson, Borough Engineer. Ill., 4 pp., Municipal Journal, June 18. 10 cents.

Joints, Water-Tight Sewer-Pipe. By E. J. Fort, Chief Engineer of Sewers, Brooklyn, N. Y. 1¼ pp., Contract Record, June 24. 10 cents.

Separate and Combined Sewers in their Relation to Sewage Disposal. 2 pp., Contract Record, June 17. 10 cents.

Sewage Disposal in the United States. Location and brief description of more than 600 plants for treating sewage. Sewage disposal and stream pollution in several states; and by State Health Boards. 9 pp., Municipal Journal, June 18. 10 cents.

The Main Sewerage and Sewage Disposal Works, and Other Recent Municipal Works, Southend-on-Sea. By E. J. Elford, Mem. Inst. C. E., Borough Engineer. Ill., 20 pp., Surveyor, June 12. 40 cents.

Bemerton and Wilton Sewage Disposal. Pumping station, sewage farm, description of engines and pumps and gas plant. By John H. Blizard, Assoc. Mem. Inst. C. E., Consulting Engineer. Ill., 1½ pp., The Local Government Journal, May 23. London. 5 cents.

The Operation of Sewage Disposal Plants. Sand filters; importance of rest period and drying of surface; plowing beds; operating in winter; broad irrigation; subsurface irrigation; choice of site; raising crops. By Francis E. Daniels, Director of Water and Sewerage Inspection, N. J. State Board of Health. Ill., 3½ pp., Municipal Journal, June 18. 10 cents.

Imhoff Tanks. Designing and operating; determining capacity of the several parts; details of design; operating tank and handling sludge. Taken from paper by Charles G. Hyde, Prof. Sanitary Engineering, University of California, before League of California Municipalities. 2¼ pp., Municipal Journal, June 18. 10 cents.

Imhoff Tanks to Increase Capacity of Baltimore's Sewage Treatment Plant. Twenty-eight units are under construction in addition to sixteen sludge-digestion tanks and 260,000 sq. ft. of drying beds. By L. C. Frank, Sanitary Engineer, U. S. Public Health Service. Ill., 2½ pp., Engineering Record, July 4. 10 cents.

Treatment Plant, Audubon Sewage. By G. L. Robinson, Consulting Engineer. Ill., 2½ pp., Engineering News, June 25. 15 cents.

Disinfection of Sewage and of the Effluents from Sewage Disposal Plants. Conclusion. 5 pp., La Technique Sanitaire, June. 60 cents.

Sewer Ventilation, The Modern Method of. Outline of essential features of the most popular system; important considerations to govern storm and dry weather flow. By Dr. E. Kohlmann, Dr. Ing. Ill., 6¼ pp., The Canadian Engineer, June 18. 10 cents.

Explosive Gases in Sewers. By G. J. White, Gas Inspector and Analyst, Department Public Works, Detroit, Mich.

2 pp., Engineering News, June 18. 15 cents.

Malaria as a Field for Philanthropy. By W. H. Deaderick, M. D., Mem. Commission for Study and Prevention of Malaria. 2 pp., The American City, June. 25 cents.

Flies, How to Rid Your Town of. By H. F. Gray, Health Officer, Palo Alto, Cal. 2½ pp., Pacific Municipalities, June, 1914. 25 cents.

Mosquito Control Work, The Recent, in San Mateo County. By L. D. Whitney, Supt. of Mosquito Control. 2 pp., Pacific Municipalities, June. 25 cents.

WATER SUPPLY.

Improved Water Supply of Dallas, Tex. Increase in quantity by impounding streams and wells; purification by rapid filters and hypochlorite, and softening. By Hunt McCaleb. Ill., 1¼ pp., Municipal Journal, June 25. 10 cents.

New Water Supply for Waco, Tex. Brazos River Water Filtered by a Mechanical Filter of 5,000,000 gallons capacity replaces an outgrown artesian supply. Ill., 2½ pp., Engineering Record, June 20. 10 cents.

Some General Plans and Preliminary Engineering Studies for Development of the Hetch-Hetchy Water Supply for San Francisco. Map. 1¼ pp., Engineering and Contracting, June 3. 10 cents.

A Pure Water Supply. By Prof. C. F. Kinney, Iowa State Board of Health. 1¼ pp., American Municipalities, June. 20 cents.

Improving the Water Supply of Galveston, Tex. Abs. of report by J. B. Hawley, Consulting Engineer, Fort Worth. ½ p., Engineering Record, July 4. 10 cents.

New Intake Tunnel, Construction of the, at Milwaukee. Blasting 4,000 feet through rock beneath Lake Michigan and lining tunnel 12 feet in diameter with concrete. Ill., 2 pp., The Contractor, July 1. 20 cents.

Water Meter Systems, Introduction of. 1¼ pp., American Municipalities, July. 20 cents.

Meters Vs. Flat Rates. By V. H. Green. ½ p., Public Service, July. 20 cents.

Reports, The Increasing Value of Annual Water. Ed., ½ p., Engineering and Contracting, July 1. 10 cents.

Water Coagulation and its Effect on Character of Mechanical Filter Effluents. 1½ pp., Engineering and Contracting, July 1. 10 cents.

Pumping Plant, Rapid Installation of Auxiliary Booster, and Pipe Lines at San Diego, Cal. ¾ p., Engineering and Contracting, July 1. 10 cents.

Design of New Steam Turbine Driven Centrifugal Pumping Machinery of the St. Louis Water Works. 1½ pp., Engineering and Contracting, July 1. 10 cents.

Service Extensions, Making. New Jersey commission rules that company must be guaranteed at least 8% on investment required before work on new lines is begun. 2 pp., Public Service, July. 20 cents.

Statistics, Water Works. Showing the distribution system, consumption, meters and rates, also treatment of water in plants both private and municipal. These tables supplement those given in the May 7th issue. 6½ pp., Municipal Journal, June 25. 10 cents.

Water Works Topics, Discussion on. Superintendents compare notes at the convention of the American Water Works Association. Cost, operation and maintenance of meters, house and fire services. 2 pp., Municipal Journal, June 11. 10 cents.

Water Works Systems, The Individuality of. Tables and curves. 2 pp., Engineering and Contracting, June 3. 10 cents.

Subaqueous Connections between Tunnels and Pump Wells in Chicago. Construction carried on in close quarters behind curved shields held against the wet-wall walls by the water pressure. Ill., 1½ pp., Engineering Record, June 20, 1914. 10 cents.

Guarding the San Diego Water Systems. By E. C. Francis, Clerk of Water Works Superintendent. ½ p., Fire and Water Engineering, June 3. 10 cents.

Driving 12-Inch Wells, Specifications for, in Water Bearing Sands at San Diego, Cal. ¾ p., Engineering and Contracting, June 3. 10 cents.

Reservoir Storage. Paper before Franklin Institute. By W. P. Mason, Prof. of Chemistry, Rensselaer Polytechnic Institute, Troy, N. Y. 3½ pp., Water & Gas Review, June. 20 cents.

Value of the Proper Location for Elevated Storage Reservoirs. Economical considerations affecting position with re-

lation to main pumping station, distribution system and territory to be supplied. By D. H. Maury, Consulting Engineer, Chicago. 1 p., Engineering Record, June 13. 10 cents.

Weir, A Proportional-Flow. The author finds that a weir whose width at any point is inversely proportional to the square root of the height at that point above the crest will have a theoretical discharge exactly proportional to the head. By E. W. Reetger, Asst. Prof. of Applied Mathematics, Cornell University. 1¼ pp., Engineering News, June 25. 25 cents.

New Water Intake at Milwaukee. Description of methods of construction with details of engineer's record system. Ill., 5½ pp., Engineering News, June 18. 15 cents.

The Self-Purification and Care of Water Stored for Public Supply Purposes. Table. 1¼ pp., Engineering and Contracting, June 3. 10 cents.

Use of Liquid Chlorine in Philadelphia and other Places. Ill., 3¼ pp., The Canadian Engineer, June 11. 10 cents.

Experimental Water Filter Plant at Cleveland. To determine best methods of removing pollution, turbidity from the present supply of Lake Erie water; description of plant; results of tests and boiler tests. By M. F. Stein, Asst. Engr. of Filter Plant Construction, and G. E. Flower, Asst. Engr. of Filter Tests. Ill., 3¼ pp., Municipal Journal, June 25. 10 cents.

Rapid Sand Filters, Operation of. When washing filters is necessary; loss of head gauges; wash water; operating each of three methods of washing. By H. P. Letton, Sanitary Engineer, Hygienic Laboratory, U. S. Public Health Service. 2 pp., Municipal Journal, June 25. 10 cents.

Recent Progress in the Rapid Filtration of Large Quantities of Water, and in the Bacteriological Purification of Drinking Water. By S. Seidmann, D. Sc. Ill., 3 pp., La Technique Sanitaire et Municipale, June. 60 cents.

Ultra-Violet Rays, Water Sterilization by. Abs. of paper by M. von Recklinghausen at 31st annual convention of American Institute of Electrical Engineers. Ill., 1¼ pp., Canadian Engineer, June 25. 10 cents.

Bell and Spigot Water Pipe Joints, A Study of Cast Iron. By C. Goldsmith, Engr., National Board of Fire Underwriters Committee on Fire Prevention. 3 pp., Fire and Water Engineering, June 10. 10 cents.

Largest Tank, Canada's. Water tower at St. Thomas is 131 feet high and holds 600,000 gallons. Ill., ¾ p., Engineering Record, June 20. 10 cents.

Water Bacteria, Death Rate of. Tables and curves. 1½ pp., Canadian Engineer, June 11. 10 cents.

STREET LIGHTING & POWER.

National Electric Light Association, Abstract of Report and Papers Read at the 37th Annual Convention of the. Held at Bellevue-Stratford, Philadelphia, from June 1 to June 6, 1914. 22 pp., Electrical World, June 6. 10 cents.

Lights and Poles, Street. Development of lighting standards; special design for different districts; ornamental poles; combined light, trolley and fire alarm supports. By K. G. Martin. Ill., 1½ pp., Municipal Journal, June 25. 10 cents.

Current Meters for Measuring the Flow in Large Pipes. By K. A. Heron. Ill., 1 p., Engineering News, June 11. 15 cents.

Gas Rates, Equitable. Paper by S. C. DeFrese before Southern Gas Association, Mobile, Ala. 2½ pp., American Gas Light Journal, June 8. 10 cents.

Gas Rate Making, Elements of. Paper by H. I. Lea, Consulting Gas Engineer, Chicago, before Iowa District Gas Assn. 2 pp., The Gas Age, June 15. 10 cents.

Stoking Machinery in Small Gas Works. Paper by W. M. Carr before the Manchester (England) District Institution of Gas Engineers. Ill., 3 pp., American Gas Light Journal, June 29. 10 cents.

Motors, Connections of Compound and Interpole. By F. A. Annett. Ill., 4 pp., Power, June 23. 5 cents.

Heat Units, Purchasing Coal by. ½ p., Municipal Journal, June 11. 10 cents.

Distribution System, The Dublin, Ireland, Three-Phase Four-Wire. By G. Archer, Asst. to Chief Engineer, Dublin Corporation Electricity Supply. Ill., 9 pp., General Electric Review, July. 20 cents.

Concrete Lamp Posts, Unusual Method of Manufacturing Hollow. By C. B. Wagner. Ill., 3 pp., Concrete-Cement Age, June. 15 cents.

FIRE AND POLICE.

A Fire House Built of Old Paving Blocks. By H. G. Vollmer, City Engineer, Burlington, Iowa. Ill., 2 pp., The American City, June. 25 cents.

Volunteer Fire Organization. Novel. By O. Meyer, Jr., President Bucks County, Pa., Firemen's Assn. 1 p., Fire and Water Engineering, June 10. 10 cents.

Fire Prevention and Business. By J. C. Stubbs, St. Joseph, Mo., before League of Nebraska Municipalities. 4½ pp., American Municipalities, June. 20 cents.

Responsibility of Owners for Fire. Editorial discussion of action in New York City to apply to owners that do not comply with fire regulations. ½ p., Municipal Journal, June 11. 10 cents.

Standard Test. The Advantages of a, for Fire Engines and Some Comments on the Tests at the 1913 Convention of the International Association of Fire Engineers. By G. W. Booth, Chief Engr., National Board of Fire Underwriters. 1½ pp., Fireman's Herald, June 27. 5 cents.

Fire Hydrant Rental. Better methods for apportioning fire protection cost; payment of actual cost on basis of capacity of distribution system. Paper before American Water Works Association by John W. Alvord. 2¾ pp., Municipal Journal, June 11. 10 cents.

Fire Hydrant Rates. Editorial discussion on the need of a new system to be used as a basis for determining fire protection charges, and the objection to the fire hydrant as a basis. ¾ p., Municipal Journal, June 25. 10 cents.

GOVERNMENT AND FINANCE.

Town Planning. Abs. of paper by C. J. Yorath, A. M. Inst. C. E., City Comr. of Saskatoon before Alberta Town Planning Association. 3 pp., Canadian Engineer, July 2. 10 cents.

Town Planning from a Lawyer's Point of View. Paper by J. L. Jack, Town Clerk of the City of Dunfermline, before meeting of Municipal and County Engineers. 1½ pp., Municipal Journal, London, June 26. 10 cents.

Regulation of Natural Monopolies. Research in the. By E. B. Rosa, Chief Physicist, U. S. Bureau of Standards, Washington, D. C. 3½ pp., The Gas Age, July 1. 10 cents.

New York Mayors' Conference. Abs. of several papers: Commission Manager Plan. By Richard S. Child. Next Step in the Campaign for Municipal Home Rule. By Robert S. Binkerd. Parks and Playgrounds. By Charles D. Lay. Making the Survey for a City Plan. By Prof. J. S. Pray. 1½ pp., Municipal Journal, July 2. 10 cents.

STREET CLEANING AND REFUSE DISPOSAL.

Clean-Up Week in St. Louis. Method of organizing and controlling extra teams used for this purpose. Cost in detail of removing 1,400 loads of rubbish. Instructing citizens in their part. By Harry M. Crutcher. Ill., 1¾ pp., Municipal Journal, June 11. 10 cents.

A Modern Street Cleaning District for New York City. Ed., ½ p., Engineering Record, June 27. 10 cents.

Organization and Methods of Street Cleaning Department. By W. H. Connell, Chief Bureau of Highways and Street Cleaning of Philadelphia. Continued from May issue. 4 pp., Better Roads and Streets, June. 15 cents.

Municipal Collection of Ashes. Data from fifteen large cities, amount per capita, cost per capita and per cubic yard. Advantages of municipal collection. ½ p., Municipal Journal, June 11. 10 cents.

Garbage Collection and Disposal in the City of St. Thomas. By W. J. Shaw, Sanitary Inspector. 1½ pp., The Municipal World, June. 10 cents.

Refuse Destructors. Operating Results of Staten Island. Comparative data for municipal plants at West New Brighton and Clifton. One a 60-ton and the other a 90-ton installation. Ill., 1½ pp., Engineering Record, June 20. 10 cents.

Values from City Garbage. Paper by C. O. Bartlett before the Cleveland Engineering Society. 1½ pp., The Chemical Engineer, June. 25 cents.

Utilizing Incinerator Heat. Editorial comment on the utilization of heat generated by refuse destructors. ½ p., Municipal Journal, June 11. 10 cents.

Refuse Disposal. St. Paul. Report of City Council and citizens on municipal

garbage and refuse disposal. ½ p., Municipal Journal, June 11. 10 cents.

Refuse disposal in Easton, Pa. Figures concerning the operation of the incinerator in 1913, collection of refuse. ½ p., Municipal Journal, June 11. 10 cents.

Modern Refuse Disposal Practice at Halifax, N. S. Ill., 2 pp., Contract Record, June 17. 10 cents.

Street Work in Philadelphia, Pa. Abs. of report by W. H. Connell, Chief, Bureau of Highways and Street Cleaning. Ill., 6½ pp., Good Roads, July 4. 5 cents.

Street Work in New Bedford. ¼ p., Municipal Journal, July 2. 10 cents.

Keeping the Streets Clean. Ed., ½ p., Good Roads, July 4. 5 cents.

TRAFFIC AND TRANSPORTATION.

Tractor-Trailers for New York Street Cleaning. Commissioner Fetherston recommends establishment of model district equipped with complete modern appliances. ¾ p., Engineering Record, June 27. 10 cents.

Steam Tractor Haulage. A road surveyor's experience. Paper by W. L. Gibson, County Road Surveyor before Institute of Municipal and County Engineers. 1½ pp., Municipal Journal, London, June 17. 10 cents.

Future Rapid Transit. Provision for, in Cities. Extracts from paper by J. B. Davies, Consulting Engineer at the National Conference on City Planning. 1½ pp., Engineering News, June 11. 15 cents.

Motor Bus Traffic—Its Developments and Characteristics. Abs. of paper by John A. McCollum, Asst. Engr. Board of Estimate and Apportionment, New York City, before the National Conference on City Planning. 1½ pp., The Canadian Engineer, June 25. 10 cents.

STRUCTURE AND MATERIALS.

Rock Drill Repair Costs. Some Records of. Curves. 1 p., Engineering and Contracting, June 3. 10 cents.

Methods of Making Sieve Analyses of Gravels. Curves. Ill., 1¾ pp., Engineering and Contracting, June 3. 10 cents.

Wood-Stage Pipe. A Machine for Wind- ing Continuous. Ill., 1½ pp., Engineering News, June 11. 15 cents.

Proportioning Concrete. 1 p., The Canadian Engineer, June 11. 10 cents.

Construction of Concrete Pipe Lines. Story of the development of concrete pipe. By Arthur S. Bent. 1¾ pp., Cement and Engineering News, June. 10 cents.

Reinforced Concrete Highway Bridge. Design Features of the Williams, over the Scioto River, Columbus, Ohio. Ill., 2½ pp., Engineering and Contracting, June 3. 10 cents.

The Economic Handling of Earth by Wheel and Fresno Scrapers. By R. T. Dane, Consulting Engineer. Illustrations, curves and tables. 8¼ pp., Engineering and Contracting, June 3. 10 cents.

Replacing Williamsburg Bridge Pins. The 10-inch main cord pins were collapsed and removed, holes counterbored and 13-inch pins inserted without shoring the spans. Ill., 2½ pp., Engineering Record, July 4. 10 cents.

Action of Sea Water on Concrete. A Further Account of Tests of the. Ill., 2 pp., Concrete-Cement Age, June. 15 cents.

Aesthetic Bridge Design. Fundamental Principles of. Abs. of paper by C. E. Fowler before Pacific Northwest Society of Engineers. 1½ pp., Engineering and Contracting, July 1. 10 cents.

MISCELLANEOUS.

The Engineering Profession and the American Society of Civil Engineers. Condensed from Presidential Address of Hunter McDonald. 2½ pp., Engineering News, June 11. 15 cents.

The Requirements of the Municipal Engineer. Extract from an address before Winnipeg Engineering Students. By H. N. Rutnan, retiring city engineer of Winnipeg. ¾ p., Contract Record, June 17. 10 cents.

The Engineering Activities of the City of Edmonton. Ill., 3½ pp., Contract Record, June 24. 10 cents.

Status of Engineering Organization in the United States. Extracts from the Presidential Address of Hunter McDonald before the Baltimore Convention of the American Society of Civil Engineers. 1¾ pp., Engineering Record, June 13. 10 cents.

Management Engineering Applied to a Highway Contractor's Organization. Paper before the American Association for the Advancement of Science. By H. B. Drowne, Instructor in Highway Engineering, Columbia University. 1½ pp., Good Roads, June 6. 10 cents.

Employment and Compensation. Conditions of, of Civil Engineers. Extracts from a discussion of report of a committee of the American Society of Civil Engineers. By C. H. Fuller, Engineer. ¾ p., Engineering News, June 18. 15 cents.

Contract Reform. Important Aspects of. Ed., ½ p., Contract Record, June 24. 10 cents.

Field Cost Accounting as the Basis for bids. Importance of determining costs in the field and how experience is analyzed. By R. H. Cook, Civil Engineer. ¾ p., Pacific Builder and Engineer, June 13. 15 cents.

A Simple Volume Regulator for Air Compressors. Ill., 1½ pp., Engineering News, June 18. 15 cents.

Penalties and Liquidated Damages. Contradictory provision in contracts and qualified release of claims. By W. B. King, Bar of the Court of Claims, Washington, D. C. ½ p., Engineering Record, June 27. 10 cents.

Protecting Residential Districts. Constructive suggestions based on a study of state laws and municipal ordinances. By L. Veiller, Secretary, National Housing Association. 5 pp., American City, June. 25 cents.

The Juvenile Court. By Judge Choque. 2 pp., The Canadian Municipal Journal, June. 10 cents.

The Community Institute in Town Development. By J. L. Gillin, Ph.D., University of Wisconsin. 2½ pp., The American City, June. 25 cents.

Emscher-Genossenschaft. The Methods and Work of the. The wide powers conferred upon the Emscher Federation to regulate the Emscher river and its tributaries, and design and construction of bridges, sewers and sewage disposal work. By Prof. P. Gillespie, C. E., University of Toronto. 2 pp., The Canadian Engineer, June 25. 10 cents.

Cost Keeping System. Some Essentials of a Contractor's. 1¾ pp., The Contractor, July 1. 20 cents.

Tunnel Ventilation during Construction. By E. Lauchli, Civil and Hydraulic Engineer. Ill., 7 pp., Canadian Engineer, July 2. 10 cents.

Regulating Storage of Combustibles. Power of cities to regulate amount and method of storing inflammable materials; ordinances must be reasonable and not discriminatory. By John Simpson. 1 p., Municipal Journal, July 2. 10 cents.

Making Dynamite Work Efficiently. Analysis of action of blast with reference to depth and spacing of holes and amount of powder for steam shovel work. By C. E. Anderson, Civil Engineer, New York City. Ill., 1¾ pp., Engineering Record, July 4. 10 cents.

Municipal Reports. Ed., ½ p., Municipal Journal, July 2. 10 cents.

BOOK REVIEW

THE PERSONALITY OF AMERICAN CITIES.—By Edward Hungerford. 344 pp. Illustrated. McBride, Nast & Co. \$2.00 net.

In this volume of personal experience Mr. Hungerford attempts to weave out of American cities distinctive atmospheres. He tries to show that what American cities lack in the individuality that comes with age, is compensated by the variety and originality of their appeal. He deals not so much with civic display of the cities, their buildings and beautifying as with the everyday atmosphere—their flavor. All the important American as well as a few Canadian cities are described. The book should appeal to all interested in municipal matters and should serve to refute those who insist on the sameness of American cities. Mr. Hungerford's volume is well illustrated with interesting photographs which visualize some of the delightful reading.

NEWS OF THE SOCIETIES

Calendar of Meetings.

July 16-19.
OHIO ELECTRIC LIGHT ASSOCIATION.—Annual Convention, Cedar Point Ohio. Secretary, D. L. Gaskill, Greenville, Ohio.

July 21-23.
LEAGUE OF WISCONSIN MUNICIPALITIES.—Annual Convention, Madison, Wis. President, Joseph Fisher, Madison.

July 24-25.
TRI-STATE PACIFIC COAST GOOD ROADS ASSOCIATION.—Annual Convention, Medford, Ore. George E. Boos, Secretary, Medford.

Aug. 5-7.
COUNTY COMMISSIONERS OF PENNSYLVANIA.—Annual Convention, Erie, Pa. T. W. Waterhouse, Chairman Local Committee.

Aug. 10-12.
MONTANA GOOD ROADS CONGRESS.—5th Annual Convention, Great Falls, Mont. Secretary, Walter S. Clark, Great Falls.

Aug. 10-15.
MASSACHUSETTS STATE PERMANENT FIREMEN'S ASSOCIATION.—Annual Convention, Lynn, Mass.

Aug. 18, 19, 20.
FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK.—Geneva, N. Y.

Sept. 11-12.
STATE FIRE MARSHALLS' ASSOCIATION OF NORTH AMERICA.—Annual Convention, Asheville, N. C.

Sept. 21-25.
ILLUMINATING ENGINEERING SOCIETY.—Eighth Annual Convention, Cleveland, Ohio. Assistant Secretary, Joseph Langan, 29 West 39th street, New York City.

Oct. 21-23.
ALABAMA GOOD ROADS ASSOCIATION.—Nineteenth Annual Convention, Montgomery, Ala. Secretary, J. A. Rountree, 1021 Brown Marx Bldg., Birmingham, Ala.

Oct. 28-31.
NORTHWESTERN ROADS CONGRESS.—Milwaukee, Wis. Secretary, J. P. Keenan, Milwaukee.

Nov. 9-13.
AMERICAN HIGHWAY ASSOCIATION.—Fourth American Road Congress, Atlanta, Ga. Secretary, J. S. Pennypacker, Colorado Building, Washington, D. C.

Nov. 18-20.
WASHINGTON STATE GOOD ROADS ASSOCIATION.—Spokane, Wash. Secretary, M. D. Lechey, Alaska Building, Seattle, Wash.

Dec. 14-17.
AMERICAN ROAD BUILDERS' ASSOCIATION.—11th Annual Convention; 5th Annual Good Roads Congress, and 6th Annual Exhibition of Machinery and Materials, International Amphitheatre, Chicago, Ill. Secretary, E. L. Powers, 150 Nassau st., New York, N. Y.

New York County Superintendents of Highways.

At Ithaca, N. Y., between two and three hundred delegates, including highway superintendents from fifty-eight counties, supervisors and other county officials met for their annual convention on June 25 and 26.

The convention was called to order by County Superintendent A. S. Cole, and Mayor Thomas Tree of Ithaca, delivered an address of welcome.

In the general discussion of road topics, besides recommending the extension of the term of office of the county superintendent from 2 to 4 years, it was suggested that the office of town superintendent be abolished and that the working of all the roads in the entire county be centralized under the county superintendent, the opinion being expressed that such an arrangement would result in the saving of thousands of dollars annually in the cost of road machinery and would result in the roads of any particular county being more uniform. The advisability of building roads costing two or three thousand dollars per mile in the outlying districts was also advocated, it being maintained that the man on the cross road deserves the bene-

fits of a good road but does not need the \$10,000 per mile highway necessary for the main arteries of travel.

Some of the speakers were: Senator George N. Blauvelt, Engineer Deal of Erie and G. E. Treman.

On the last day inspection tours were made of the roads in several counties.

League of Michigan Municipalities.

The League held its annual convention in Bay City on June 25 and 26. It was the general opinion of the delegates that this convention has been the most successful yet held in the history of the organization.

The address of welcome was delivered by Mayor Gustavus Hine, of Bay City. The addresses delivered during the morning and afternoon of the first day were as follows: "Commission Form of Government," by Thomas Wellman, ex-city attorney, Port Huron; "The Manager Plan of Commission Government," by O. E. Carr, city manager, Cadillac; "Garbage Disposal," by Dr. A. H. Rockwell, city health officer, Kalamazoo; "Incineration Plant," by Prof. E. D. Rich, State Sanitary Engineer, Lansing; "Sealer of Weights and Measures," by F. Barnard, city sealer, Battle Creek; "Playgrounds," by George E. Ellis, Mayor, Grand Rapids; "The Press and the Administration," by W. F. Jahnke, commissioner of finance, Saginaw.

A fire drill was held at 4.30 P. M. and in the evening there was a boat ride to Wenona Beach.

On June 26, Alpena was chosen as the convention city for 1915 and these officers were elected for the ensuing year:

President, J. J. Johnson, mayor of Pontiac.

Vice-President, W. P. Collins, clerk of Alpena.

Secretary and Treasurer, George H. Curtis, alderman of Jackson.

Directors—Mayor J. H. Whitney, St. Louis; Alderman Charles A. Sink, Ann Arbor; Mayor L. A. Goodrich, Hillsdale; Treasurer W. J. Jahnke, Saginaw; Superintendent of Electric Light Charles Retallic, of Marquette.

Massachusetts Mayors' Club.

Massachusetts Mayors' club had an outing in Worcester on June 17 as guest of Mayor Geo. M. Wright. Most of the cities of the commonwealth were represented by their chief executives or official representatives. The day was opened with a sight-seeing trip in automobiles, followed by visits to Home farm for lunch and to some of the big manufacturing plants. Many of the mayors remained to attend the celebration in honor of a new ornamental street lighting system in the business section of Worcester which was observed in the evening.

Municipal Home Rule League.

The Municipal Home Rule League has been formed in Harrisburg, Pa., by representatives of 54 municipalities

and resolutions have been adopted against certain portions of the law giving the Public Service Commission of Pennsylvania control over utilities in municipalities. Plans also were made to start an agitation for the repeal of these sections which, it was contended, take from municipalities the right to contract with public service companies within their borders and interfere with competition.

David L. Starr, of Bellevue, was elected chairman; George F. P. Langfitt, of the same borough, secretary, and R. A. Holmes, Lansford, treasurer. The speakers included John W. West, Avalon; Mayor Ira W. Stratton, Reading; W. R. Peoples, Jersey Shore; Harry Calhoun, New Brighton; R. A. McCullough, Kittanning; William W. Hall, Pittston; Horace W. Davis, Sharon, and W. L. Pace, Wilkes-Barre.

Arrangements were made to raise a fund of \$5,000 and for committees on finance, legislation and campaign. It was stated that letters from 100 municipalities not represented but pledging support had been received.

Society for the Promotion of Engineering Education.

The society held its twenty-second annual convention at Princeton University, June 23-26. Two hundred members attended and manifested a great interest in the papers and discussion of the various sessions.

Most of the papers had been printed in advance so that the greater part of the time could be devoted to discussions. Among the important papers were those bearing on methods of teaching mathematics; and reports were read on some recent experiments on marking engineering students according to the character and personal qualifications which have been made at the University of Perdue and the University of Cincinnati.

Various social events were arranged for the visitors' pleasure, including a reception by President and Mrs. Hibben, a lecture on the great meteor crater at Arizona, and the annual dinner of the society at which the president, Dean Gardner, of Tufts College, delivered the annual address.

These officers were elected for the ensuing year: President, Anson, Marston, dean of the division of engineering, Iowa State College, Ames, Iowa, vice-presidents, Henry H. Norris, "Electric Railway Journal," New York, and C. Russ Richards, acting dean of the College of Engineering, University of Illinois, Urbana, Ill.; secretary, F. L. Bishop, dean of the School of Engineering, University of Pittsburgh, Pittsburgh, Pa.; treasurer, William O. Wiley, John Wiley & Sons, New York; members of the council, R. H. Fernald, A. H. Fuller, A. M. Greene, Jr., E. V. Huntington, Vladimir Karapetoff, D. C. Miller, W. M. Riggs.

Pacific Northwest Society of Engineers.

The society held its twelfth annual convention in Seattle on June 19-20. In his annual address President Joseph

(Continued on page 57.)

NEW APPLIANCES

STORING OF INFLAMMABLE LIQUIDS.

The Martini & Hüneke Company, of New York City, on June 30 gave a demonstration of their system for the safe storage and distribution of inflammable liquids, such as gasoline. The exhibition was given before a number of invited spectators in the old race track at Guttenberg, N. J. In this system the main gasoline tank may be placed near or even directly under the building, since there is said to be absolute freedom from danger of explosion. In securing pressure in the tank, an inert gas, such as CO₂, is substituted for air, a pressure of from 1 to 1½ atmospheres being customary. In small equipments CO₂ tanks may be used for filling the gasoline tank. All pipes leading from the tank are enclosed in a larger pipe which is connected with the upper part of the tank and filled with the inert gas used. In case of a leak, the gas escapes, the pressure in the tank is reduced, and the liquid flows back into it; enough inert gas remaining in the tank to prevent the formation of explosive gases. (The danger in the storing of gasoline lies in the formation of an explosive mixture of gasoline vapor and air, and it is the purpose of this system of using inert gas to prevent the access of air to the gasoline.) The draw-off pipe terminates in a specially constructed draw-off valve having a by-pass which opens when the valve is closed, thus allowing the liquid to flow back into the tank and both the inner and outer pipe to fill with the inert gas. As an additional precaution, practically all connecting pipes are made of lead, and at every draw-off or intake valve a fusible plug is so placed that in case of fire the plug will melt

out (which takes place at about 150 deg. to 180 deg. F.) permitting the gas to escape, and thus reducing the pressure and allowing the gasoline to flow back into the tank. If the heat from the fire increases sufficiently, the lead pipes melt, and the main tank is disengaged from the rest of the system. Anti-diffusers are placed at the tank

pipe leading to the storage tank, thus preventing combustion at any point.

In the third test, while the draw-off valve was discharging at its full capacity, and held open with a wire, a fire was started around it. In less than ten seconds, the fusible plug referred to blew out, and the system automatically shut off the flow of gasoline, drained the pipe and filled it with inert gas.

It is claimed that where this system is used, there is no danger in the storage of gasoline or other inflammable liquids, even within city limits. The system is already used in other countries, branches having been established at Berlin, Vienna, Milan, Amsterdam, Paris and Warsaw.



TESTING THE MARTINI-HÜNEKE STORAGE SYSTEM FOR INFLAMMABLE LIQUIDS.

end of all pipes, which prevent a circulation of air in the system and enough inert gas is always maintained in the pipes and tank to prevent the formation of an air-gasoline combustible mixture.

In the test referred to, a storage tank containing about 250 gallons of gasoline was exposed to an electric spark, but the inert gases in the tank prevented the formation of a combustible mixture and no discharge resulted. A fire was then built around a transportation drum containing about 30 gallons of gasoline while it was being emptied into the storage tank. Although the drum became almost red hot, no fire or explosion resulted, the inert gas being discharged into the drum and, after the drum was emptied, filling the

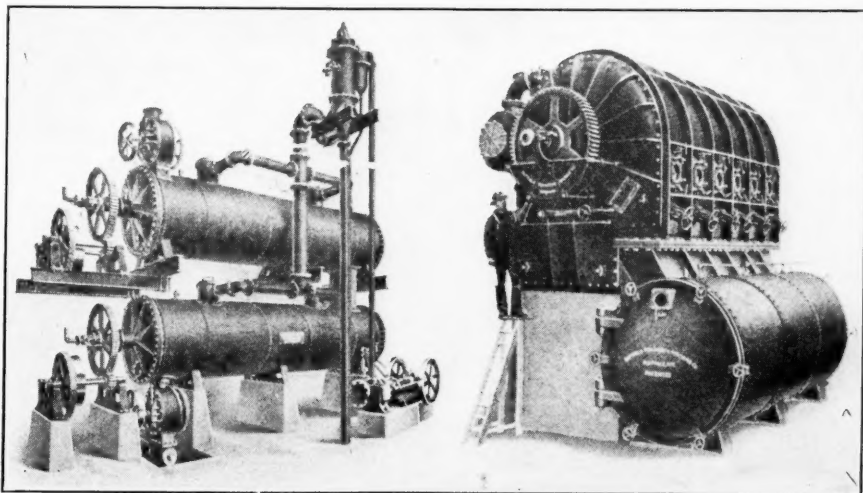
VACUUM DRYING APPARATUS.

Drum and Rotary Dryers for Drying and Cooking Sewage Sludge and Garbage.

The B. F. & M. Vacuum Drying Apparatus is a line made by the Buffalo Foundry & Machine Co., Buffalo, N. Y., and designed for drying, mixing, evaporating and cooking materials. Both the drum and rotary types may be used for handling garbage and sewage sludge. The drum dryer is for drying more liquid matter. It consists of a hollow drum, revolving in a sealed casing fitted with charging and discharging devices. The bottom of the chamber acts as a reservoir for the liquid. A vacuum pump and condenser exhaust vapor from the casing so that the material is dried in a vacuum at low temperature while the moisture is removed by evaporation. The rotary dryer will handle any material that can be tumbled or mixed while drying. A revolving heating tube with mixing arms and blades revolves in a steam-jacketed cylinder in which the material is dried in a vacuum by rapid evaporation. This dryer may be used as a percolator, mixer, evaporator and cooker. If cooking is required before drying, this may be done by doing the cooking before the vacuum is made. The material may then be dried in the same apparatus. Low operating costs and rapid evaporation with small steam consumption are advantages claimed for this type of dryer. Both the types are shown in the illustration.

CITY WASTE CANS.

De Zouche, Hanson & Co., Philadelphia, Pa., make waste and refuse cans especially designed for use by street cleaning departments and other users of strong receptacles. The manufacturers have furnished to the city of



ROTARY AND DRUM DRYERS.

Philadelphia about 2,000 of these cans. These cans are made in accordance with the city specifications and are constructed for extra rough usage. They are made of special heavy sheet iron and have metal braces 6 inches apart, running the full length of the can so that there is not much opportunity for them to be knocked out of shape. The can is hooded and the bottom specially fastened.

A FIRE DEPARTMENT MOTOR-CYCLE.

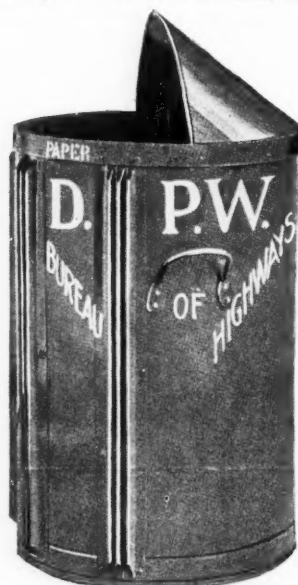
A Speedy Apparatus Carrying a Hand Extinguisher for First Aid Fire Work.

The Miami Cycle & Mfg. Co., 785 Hanover Street, Middletown, O., has brought out a motorcycle specially designed for fire department service. A motorcycle, equipped with an efficient, small and easily operated hand extinguisher, can reach a fire some minutes before the heavier apparatus and do excellent work—perhaps averting considerable loss. The machine is the regular Miami twin cylinder, chain drive, 7 hp. cycle. Annular ball bearings are used throughout, valves are mechanically operated with adjustable tappet. The carburetor is the new Merkel-Schebler, with auxiliary air valve for high speed and special air shutter to facilitate easy starting. The control is by Merkel patent leverless, double handle-bar control, making it unnecessary for the operator to remove his hand from the handle-bars while riding. The saddle position is low and all working joints are covered with oil and dust-proof leather jackets. Wheels are 28 inch with 35 extra heavy motor spokes, front and rear, and single clinch auto type steel rims for $2\frac{1}{2}$ or $2\frac{3}{4}$ or 3 inch tires. $2\frac{3}{4}$ tires are furnished regularly. There are two separate and distinct brakes, one operated by pedal mounted in a convenient position on the footboard and the other operated by a back pressure on the pedal, so that no matter in what position the feet of the rider may be, he has a brake always at his



MIAMI FIRE MOTOR CYCLE.

command. The gasoline capacity is $2\frac{1}{2}$ gallons and the oil tank is made integral with the frame and affords a capacity of a little over one-half gallon. The luggage carrier is made of one-half inch seamless steel tubing, with cold-rolled stamped connections and it is fitted so that another fireman can very easily be carried on the luggage carrier if so desired. The equipment consists of a two-quart Pyrene fire extinguisher, mounted on brackets on the front fork, these brackets being especially constructed so that it is not



SPECIAL DESIGN.

necessary to unscrew any clamp or bolt in order to remove the extinguisher. In fact both extinguishers can be removed from their holders in one second. The other equipment consists of a fireman's axe, mounted in a pocket and held in place by a spring steel clip, so that it can be jerked out as readily as the Pyrene extinguisher. A fire whistle is used as alarm. A special first-aid kit is carried on the luggage carrier.

HAND EXTINGUISHERS AND CHEMICAL ENGINES.

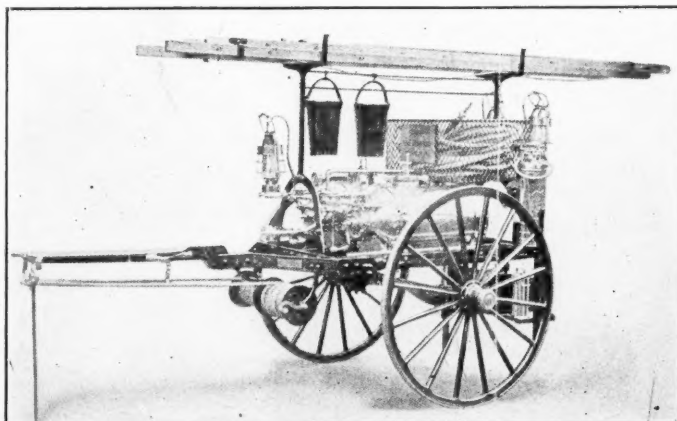
"Accurate" Engine and "Peerless" Extinguisher.

The National Metal Stamping & Mfg. Co., Newark, N. J., make a line of chemical fire-fighting apparatus ranging from the "Accurate Jr.," extinguisher with a capacity of $1\frac{1}{2}$ gallons to the "Accurate" 2-wheel chemical engine with a double 35-gallon tank. The extinguisher consists of a riveted copper cylinder containing about three gallons of water in which is dissolved $1\frac{1}{2}$

pounds of sodium bicarbonate. Four ounces of sulphuric acid is contained in a bottle closed by a loose, but air-tight stopper, and supported in a removable cage. The bottle holder is a patented device, the cage being complete in itself, and not attached either to the head or the body of the extinguisher. "Accurate 40" is a copper chemical tank mounted vertically on wheels. "Type K" is a double 35-gallon copper tank engine. Type 10 is mounted horizontally on wheels with a wire cage basket and tool box.

The "Pyrene" Fire Extinguisher.

The fire extinguisher of the Pyrene Manufacturing Co. is a small, but effective, double-acting hand-pump discharging an organic liquid which may be used on all kinds of fires. Pyrene does not contain acid, alkali, salts or moisture so that it is claimed no damage is done to anything brought in contact. It is claimed that Pyrene is non-corrosive and non-deteriorating, non-freezing even at 60 deg. F. below zero. This extinguisher may be used on fires in gasoline, varnish, calcium carbide and other difficult fires and, since Pyrene is a non-conductor, with a resistance of 30,000 megohms per cubic inch, it may be used on electric fires. The operation of the double-acting pumps may be made clear with the illustration. The piston-rod with the sliding valve at its lower end is drawn out by means of the handle and a partial vacuum created in the pump tube in which the piston works. This draws the liquid through the lower ball valve into the bottom of the pump tube. At the end of the first stroke the liquid has completely filled this outer tube. On the in-stroke an opening into the hollow piston-rod is made for the liquid in the pump tube through the piston slide valve. The compression of the liquid in the pump tube causes the lower ball valve to close, forcing the liquid in the pump-tube into the piston-rod tube. On this same stroke liquid is drawn into the upper portion of the pump tube through the top ball valve. When the stroke is completed the pump tube and the piston-rod tube are filled and the piston is ready for the second outstroke. The movement of



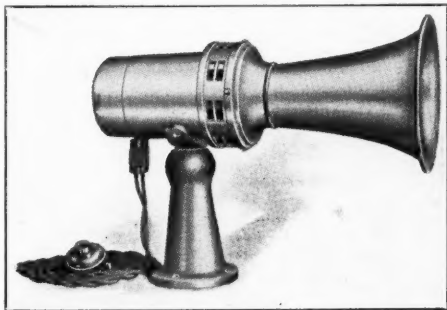
"ACCURATE" CHEMICAL FIRE ENGINE.

the liquid is now similar to that in the first stroke, except that the tubes are filled. The liquid is now forced into the ejection tube at the top and thence out at the nozzle. Since all tubes are now filled liquid is ejected at both the strokes. The Pyrene extinguisher weighs only about five pounds and is 14 inches long and 3 inches in diameter.

THE STERLING ELECTRIC SIREN FIRE HORN.

An Electric Warning for Motor Fire Apparatus.

The Inter-State Machine Co., New London, Conn., which makes the hand-operated Sterling Siren Fire Horns, is now making an electrically-operated siren. There are two designs—one with a dash bracket for fire trucks and one in which the siren is mounted on a deck bracket for use on boat decks or running boards of trucks. The horn operates on a six, eight or twelve-volt lighting, starting or ignition storage battery which is part of the regular equipment of almost every fire truck or on eight dry cells—the higher the voltage the louder the tone. The siren gives a rich, clear note which carries a good distance. It consists of a small high-speed motor enclosed in an attractive dust and waterproof housing. To the armature is connect-



STERLING ELECTRIC FIRE HORN.

ed a 4-inch aluminum rotor which operating at high speed against the air cut off by specially designed ports produces the siren-note. The motor requires no attention and, except for packing the bearings in grease three or four times a year, no lubrication is necessary. With the siren is furnished cable, terminals, switch and mounting screws. The dimensions are: Length, about 13 inches; diameter, motor end, about $3\frac{1}{4}$ inches; diameter at mouth of horn $5\frac{7}{8}$ inches.

THE "WATCH DOG" FEED-WATER REGULATOR.

The "Watch Dog" feed-water regulator made by L. J. Wing Mfg. Co., New York City, and described in our May 7 issue, is now being made in a new type with some changes in the original design, which was described. The general operation is the same. The rubber diaphragm of the old type regulator needed an occasional renewing, but is now replaced by a bronze piston. The feed valve now used is the Jenkins Bros. valve with renewable discs so

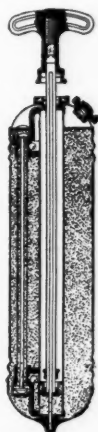
that when a valve is worn it does not have to be replaced by a new one or to be reground as was necessary in the old type. The design of the pilot valve has been also changed somewhat.

INDUSTRIAL NEWS

Cast Iron Pipe. Chicago. No municipal lettings of importance noted. Business has been of routine character. Quotations:—4 inch, \$26; 6 to 12 inch, \$24; 16 inch and upward, \$23.50. Birmingham. Larger pipe manufacturers are in receipt of orders sufficient in the aggregate to keep the plants running on a 60 to 75 per cent. basis. No large contracts have been recently secured.



"Accurate"



"Pyrene"

FIRE EXTINGUISHERS.

Quotations:—4 inch, \$20.50; 6 inch and upward, \$18.50. San Francisco. Corporation buying is of limited extent; municipal inquiries are developing slowly. Quotations:—6 inch and upward, \$31.50 per ton; 4 inch, \$33.50. New York—Municipal lettings were few and unimportant. General inquiry better and prospects favor increase in business. Quotations: Car load lots of 6 inch, \$20.50 to \$21 per ton.

Lead.—Quotations:—New York, 3.90c; St. Louis, 3.775c.

The Gamewell Fire Alarm Telegraph Company announce the removal of their offices to suite 5708 Grand Central Terminal, New York.

New Paving Brick Company. The Keystone Clay Company, recently organized at Wilkes-Barre, Pa., is building its plant. John J. Ruckno will be plant manager of the new concern. William R. Royer has been made president and general manager of the new company. Frank Foster is the vice-president, and A. N. Rippart, trust officer of the Miner's Bank, will be the secretary-treasurer. It is expected to have the plant in operation in a month. The capacity of the plant will be about 60,000 paving brick a day but at the start the machinery will be run to an output of but about 15,000 a day.

New Street Machinery Delivered. A consignment of new machinery for street work has reached Binghamton, N. Y. The equipment includes a

sweeper made by the Universal Road Machinery Co. and an Austin scraper.

NEWS OF THE SOCIETY.

(Continued from page 51.)

Jacobs made a plea for the opening up of the arid and logged-off lands of the Pacific Northwest. In the afternoon session a paper was read by T. W. Allen, Deputy Engineer of King County, on "Highway Construction." A banquet was held in the evening at the Hotel Frye. S. B. Hill was toastmaster, and an address was delivered by D. C. Henry, Consulting Engineer of the United States Reclamation Service, on "Storage Problems in the Yakima Valley."

PERSONALS

Dexter, C. P., of the county engineer's office at Seattle, Wash., has been appointed an assistant engineer to the Alaska Engineering Commission.

Mr. W. A. Farish was recently appointed to the position of city manager of Phoenix, Ariz., by the commissioners elected under the new city charter. Phoenix is a city of about 3,500 and is an important addition to the list of towns having adopted the commission-city manager form of municipal government.

Mr. John C. Ford has been appointed superintendent for the Woodbury, N. J., water department, which has considerable construction work under way. Mr. Ford has been assistant superintendent for fourteen years.

Pollock, Clarence D., has resigned as chief engineer of highways of San Antonio, Tex., the resignation taking effect July 1. He plans to open an office in New York as consulting engineer, making a specialty of paving.

Mr. J. R. Shidler has resigned as highway engineer in the U. S. office of public roads to become county highway engineer for Coahoma county, Miss., with headquarters at Clarksdale.

Harrison Smith and G. C. See, civil engineers of Temple, Tex., have formed a partnership under the firm name of See & Smith. They will make highway engineering a specialty. Mr. Smith has recently been connected with hydroelectric development work near Birmingham, Ala., and Mr. See has been with the New York State Highway Commission for the past six years, being an assistant division engineer at the time of his resignation.

Wight, Harry Collins, has been appointed superintendent of the Division of Water, Dayton, Ohio. He will have full charge, under the Director of Public Service, of accounting, pumping, construction and maintenance of water works, mains and services. Mr. Wight is a graduate of Cornell.

Mr. James B. Wilson has been elected chief engineer and superintendent for the Louisville Water Co., Louisville, Ky., to succeed Mr. T. A. Leisen, who resigned to accept the position of superintendent of the Detroit water works.

ADVANCE CONTRACT NEWS

ADVANCED INFORMATION BIDS ASKED FOR

CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS.				
Ind.	Brownstown	10 a.m., July	11..Gravel road	E. W. Edwards, Co. Aud.
Wis.	Marinette	2 p.m., July	11..Constructing macadam pavement	A. H. Holquist, Chr. B. P. W.
Minn.	Ivanhoe	1 p.m., July	11..Grading culverts, bridges, surfacing, cost about \$35,000.	K. A. Hansen, Co. Aud.
Minn.	Rochester	July	11..One portable gyratory stone crusher	L. J. Fiegel, Auditor
Ind.	Muncie	10 a.m., July	11..Sidewalk and street paving	J. R. Shelly, City Clk.
Col.	Denver	Noon, July	11..Grading and graveling two or more miles of road	T. J. Ehrhart, State Hwy. Comr.
Ill.	Decatur	About July	12..8,630 sq. yds. brick pavement, and 5,600 ft. concrete curb and gutter	P. T. Hicks, Engr.
Minn.	Redwood Falls	1 p.m., July	13..State rural highway	L. P. Larson, Co. Aud.
Miss.	Newton	July	13..Improving with various materials 22 miles highways	P. S. Snowden, Engr.
Cal.	Pomono	July	13..1,365,271 sq. ft. concrete paving, etc.	City Clerk.
Ill.	Waukegan	8 p.m., July	13..10,830 sq. yds. asphaltic concrete on 5-inch concrete base, and 5,000 ft. concrete curb and gutter; estimated cost, \$26,664	M. J. Douthitt, City Engr.
Ind.	South Bend	11 a.m., July	13..13,700 ft. of gravel road	C. Sedgwick, Aud.
S. D.	Sioux Falls	9 a.m., July	13..Paving seven blocks	W. C. Leyse, City Aud.
Pa.	Llanerch	8 p.m., July	13..Paving one road with improved material	Township Comrs.
Minn.	Anoka	2 p.m., July	13..860 cu. yds. of surfacing, 954 cu. yds. macadamizing and 954 cu. yds. graveling	A. A. Caswell, Co. Aud.
Minn.	Grand Rapids	10 a.m., July	13..Constructing state road	M. A. Spang, Co. Aud.
Minn.	St. James	1 p.m., July	13..Bridge work, grading and turnpiking	J. C. Jensen, Co. Aud.
Minn.	Buffalo	2 p.m., July	13..Grading and graveling several roads	J. A. Berg, Co. Aud.
Minn.	Red Lake Falls	2 p.m., July	13..Constructing 10 miles of road	G. Du Pont, Auditor.
Minn.	Worthington	2 p.m., July	13..Grading, graveling and turnpiking nine concrete culverts, cost \$3,686	G. Swanberg, Co. Aud.
N. J.	Perth Amboy	2.30 p.m., July	13..Concrete pavement, distance, 3,260 ft.	Ed. Chosen Freeholders
Minn.	Shakopee	10 a.m., July	13..Road culverts	A. J. Meyer, Co. Auditor
Ia.	Waterloo	7.30 p.m., July	13..Constructing pavement with vit. block or asphalt on concrete base	R. L. Degon, City Clerk
N. J.	East Orange	8 p.m., July	13..Laying about 2,550 sq. ft. of 4-ft. artificial stone walk	A. I. Webster, City Clerk
N. J.	Wellington	8 p.m., July	13..Re-macadamizing and repairing one street and furnishing 40 cubic yds. of inch stone	N. C. Berry, Boro. Clerk
Minn.	Two Harbors	10 a.m., July	13..Clearing, grubbing and grading one road	J. P. Paulson, Co. Aud.
Ia.	Marshalltown	9 a.m., July	13..Nine blocks of concrete paving	J. J. Wilson, City Clk.
Minn.	Bemidji	4.30 p.m., July	13..Clearing, grubbing, turnpiking, ditching, graveling, etc.	J. L. George, Co. Aud.
Minn.	Crookston	8 p.m., July	14..Sheet asphalt on concrete base	L. Ellington, City Clk.
Minn.	Blue Earth	2 p.m., July	14..Grading, turnpiking and culverts	J. L. Herring, Co. Aud.
Md.	Baltimore	Noon, July	14..Building 7 sects. of state hwy., aggregating 26.62 miles	O. E. Weller, State Rds. Comr.
O.	Shaker Heights	Noon, July	14..Grading, draining, curbing and paving with brick, concrete, asphalt or bituminous macadam	C. A. Palmer, Village Clk.
O.	Wauseon	1 p.m., July	14..Road improvements	Commsrs. Henry & Fulton Cos.
O.	Bowling Green	1 p.m., July	14..Grading, draining and macadamizing, also applying tar and bituminous binder	C. E. Stinebaugh, Co. Aud.
O.	Springfield	10 a.m., July	14..Installing new creosoted wood block on several bridges	County Commissioners
Ia.	New Orleans	Noon, July	14..Graveling 13 miles of public highway	W. Atkinson, State Hwy. Eng.
Minn.	St. Paul	2 p.m., July	14..Eleven jobs of road improvement, cost about \$8,665	W. H. Holz, Auditor
Conn.	Hartford	2 p.m., July	14..7,000 ft. of gravel or native stone macadam; several thousand feet of permanent pavement in several towns	C. J. Bennett, State Hwy. Comr.
Wash.	Seattle	10 a.m., July	14..Grading and graveling one road	County Comrs.
O.	Toledo	10 a.m., July	14..Grading, draining and macadamizing with bituminous binder	Co. Comrs.
Ia.	Hammond	July	14..Graveling 13 miles of highway	State Hwy. Dept., New Orleans
Utah	Lehi	July	14..About 2 1/2 miles cement sidewalk	City Recorder.
Ill.	Elgin	10 a.m., July	14..7,846 sq. yds. asphaltic concrete; 6,436 sq. yds. asphaltic concrete on Second Street	Board Local Improvements.
O.	Steubenville	Noon, July	14..Constructing brick road	J. L. Mean, Co. Aud.
Pa.	Pottsville	July	15..Several thousand square yards of paving	Dept. Sts. & Pub. Imp.
Ill.	Springfield	July	15..21,333 sq. yds. of paving	W. Seely, Engr.
O.	Lorain	Noon, July	15..Paving with various materials, 30,500 sq. yds., also draining and curbing	L. B. Johnston, Clk.
Fla.	Fernandina	July	15..Paving, grading, bridging, etc.	J. W. Kean, Chr. Co. Comrs.
Ia.	Wapello	11 a.m., July	15..County road grading	H. W. Baker, Aud.
Tex.	Cameron	July	15..Macadam gravel and concrete road, to cost about \$150,000	J. C. Field Eng. Co., Denison
Minn.	Buffalo	2 p.m., July	15..Grading and graveling two roads	J. A. Berg, Co. Aud.
N. Y.	Ithaca	4 p.m., July	15..Constructing brick pavement; alternate bids for concrete	O. E. Kerr, City Clerk
S. D.	Rapid City	Noon, July	15..Grading county road	J. G. Hopkins, Co. Aud.
Minn.	Sleepy Eye	2 p.m., July	15..Sanitary sewer system, including disposal plant and storm sewer outlets	Burns & McDonald, Kansas City, Mo.
N. Y.	New York	2 p.m., July	16..Curbing, recurbing, flagging, paving with granite blocks, etc.	M. M. Marks, Boro. Pres.
Miss.	Tupello	noon, July	16..Furnishing and constructing culverts and surfacing either with gravel or concrete about 47 miles of h'way	E. W. Robins, Hwy. Comr.
O.	Pioneer	July	16..13,760 sq. yds. of paving	Smith & Bulay, Engrs., Toledo
Wis.	Madison	2 p.m., July	16..20,000 sq. yds. of sheet asphalt pavement, and 7,000 sq. yds. of asphalt macadam on concrete base	E. E. Parker, City Engr.
Ind.	Indianapolis	10 a.m., July	17..Constructing cement sidewalk	Board Park Comrs.
Ind.	Warsaw	10 a.m., July	17..Constructing gravel roads	D. D. Mock, Co. Aud.
O.	Cincinnati	Noon, July	17..Constructing three miles of road	County Commissioners
Minn.	Alexandria	10 a.m., July	17..Three jobs of state road work	E. J. Brandt, Co. Auditor
Wis.	Watertown	2 p.m., July	17..Improving several sts., consisting of 6,714 sq. yds. reinforced conc.; 4,371 ft. of combined conc. curb & gutter	Board of Public Works
O.	Cleveland	10 a.m., July	18..Constructing embankment	County Commissioners
Ind.	Shelbyville	11 a.m., July	18..Grading, draining & graveling highways in two counties	Comrs. of Decatur & Shelby County
O.	Delaware	11 a.m., July	18..Grading, draining, graveling or macadamizing several miles	F. C. Higley, Co. Surv.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Ill.	Allison	July 18	Several gr. roads; estimated cost, \$12,000.	J. L. McAndrew, Clk.
O.	Dayton	10 a.m., July 18	Completing embankment and graveling.	W. H. Aszling, Secy.
W. Va.	Jacksonburg	July 19	Grading or building 25 miles of road.	Co. Clk., New Martinsville.
Ind.	Fort Wayne	10 a.m., July 20	Grading, draining and paving with stone.	Allan & Noble, Co. Auditors
Wis.	Clintonville	7.30 p.m., July 20	Concrete and asphaltic concrete pavements on several streets	Committee on Streets.
Ala.	Decatur	8 p.m., July 21	Constructing pavements of macadam, gravel, asphalt, etc.; also cement curbs and gutters, etc.; estimated cost, \$150,000	P. J. Edwards, Mayor.
Pa.	Harrisburg	July 21	Constructing highways of brick, asphaltic bituminous macadam and other materials.	State Hwy. Dept.
N. J.	Trenton	2.30 p.m., July 22	Paving with bituminous concrete on several streets.	F. Thompson, City Clk.
Ind.	Gary	July 22	5,590 sq. yds. macadam, 8,686 sq. yds. brick, 4,470 sq. yds. concrete, 8,260 sq. yds. of sidewalk, cost \$52,975; oiling streets, requiring 50,000 gals. of oil, cost \$8,530.	W. J. Fulton, City Engr.
O.	Perrysburg	Noon, July 22	Paving two streets.	G. Champe, Engr., Toledo.
Pa.	Pittsburgh	10 a.m., July 22	Constructing several counties.	P. J. Cunningham, Co. Cont.
Pa.	Pottsville	July 22	Grading, curbing and paving; including about 12,866 sq. yds. treated wood block for vit. brick.	City Clerk.
O.	Columbus	July 23	Improving and macadamizing several streets.	J. Scott, Clk. of Board.
Wis.	Neenah	2 p.m., July 23	Improving several streets with combined concrete curb and gutter	H. M. Zemlock, Sec. Bd. P. W.
Wis.	Portage	Noon, July 24	16,000 ft. of concrete curb and gutter; 23,000 yds. of vit. brick pavement, and 4,600 ft. of vit. pipe storm sewer.	F. R. Goss, Acting City Clk.
O.	Cincinnati	Noon, July 24	Treating road with bituminous road surfacing.	County Comrs.
O.	Edon	Noon, July 24	Paving two streets.	C. Champe, Engr., Toledo.
O.	Cleveland	10 a.m., July 25	Constructing and repairing one road.	E. G. Krause, Clerk.
N. Y.	Albany	1 p.m., July 27	Paving and repair work in several counties. (See Proposal ad.)	J. N. Carlisle, Comr.
O.	La Rue	July 29	Paving with asphaltic block and vit. brick on concrete and cement curb; cost, \$32,000.	J. V. Campbell, Vil. Clk.
Ind.	South Bend	11 a.m., July 30	3,700 ft. of gravel road improvement.	C. Sedgwick, Co. Aud.
O.	Massillon	Aug. 4	Paving one road, cost about \$100,000.	State Hwy. Dept., Columbus
O.	Marion	Noon, Aug. 4	Paving one street	A. C. Cass, Dir. Pub. Service.
Minn.	St. Paul	2 p.m., Aug. 6	Excavating machinery, fitted with orange peel bucket.	C. L. Potter, Lieut.-Col. Engr.

SEWERAGE

Wis.	Racine	10 a.m., July 11	702 feet 8-inch pipe sewer	Board Public Works.
Ill.	Chicago	8 p.m., July 11	Installing sanitary sewer system.	M. H. McCoy, Engr.
Wis.	Racine	10 a.m., July 11	Sewer in one street.	Board Public Works.
Miss.	Newton	Noon, July 13	Culvert piping	Highway Commission.
Cal.	Los Angeles	Noon, July 13	Brick and monolithic storm sewer	Board Public Works.
Pa.	Meadville	8 p.m., July 13	Constructing sanitary sewer.	F. C. Kiebert, City Clk.
Ia.	Waterloo	7.30 p.m., July 13	Sewer system, including pump house, etc., with pipes ranging from 8-30-inch	City Clerk.
S. D.	Aberdeen	10 a.m., July 13	1,465 ft. of eight-inch sewers and two manholes.	F. W. Raymond, City Aud.
Ia.	Guthrie Centre	July 14	Sewer work to cost about \$3,700.	Weeks, City Clk.
D. C.	Washington	2 p.m., July 14	Furnishing and delivering electrically-operated centrifugal sewage pumps.	District Comms.
N. J.	Newark	2 p.m., July 14	Construction Section 12 of main intercepting sewer.	Passaic Valley Sew. Com.
O.	Steubenville	Noon, July 14	Constructing sewers	County Commissioners
O.	Columbus	Noon, July 14	Constructing sewage disposal plant & system of sanitary sewers	County Commissioners
Neb.	Stanton	8 p.m., July 14	Sewer work	W. T. McFarland, City Clk.
Minn.	Staple	8 p.m., July 14	Sewage disposal plant, with Imhoff tank and sludge bed.	F. W. Findsen, City Clk.
Minn.	Morris	8 p.m., July 14	Constructing sewer	S. A. Siverts, Jr., City Mgr.
Neb.	Stanton	8 p.m., July 14	Outlet sewer, consisting of 3,345 ft. of 18-in. and 662 ft. of 10-in. sewer pipe, and 6 manholes.	W. T. McFarland, Clk.
Ill.	Springfield	July 15	Constructing 5-ft. single ring brick sewer, and extending a sewer 3,200 ft.; cost about \$14,000.	W. D. Seeley, City Engr.
Ore.	Portland	July 15	Constructing sewers	A. L. Barbour, City Aud.
Fla.	Daytona	July 15	21 miles 8-24-inch vit. pipe sewer, 430 tons c. i. pipe, 16,000 ft. galv. iron pipe, etc.	Bd. Pub. Works
Ia.	Fort Dodge	July 15	1,500 ft. 8-in. vit. pipe sewer, and 1,766 ft. 8-in. vit. pipe sewer in another street.	J. Ford, Mayor
N. Y.	New York	2 p.m., July 16	Reconstructing sewer in one street.	M. M. Marks, Boro. Pres.
N. Y.	N. Y., Bronx	10.30 a.m., July 16	Constructing sewers and appurtenances in several streets.	D. Mathewson, Boro. Pres.
O.	Salem	Noon, July 17	Sanitary storm sewers	I. N. Russell, Dir. P. S.
O.	Westerville	Noon, July 17	Extending sanitary sewer system	R. D. Bennett, Vil. Clk.
B. C.	Vancouver	July 18	Sewer work to cost about \$300,000.	Vancouver & Joint Sewage Bd.
O.	Castalia	Noon, July 18	Settling basins and drainage in school.	W. H. Rogers, Jr., Clk. B. of E.
Pa.	Tarentum	July 20	Constructing 4,000 ft. 12-inch sanitary sewer; with 15 manholes, and combined sterilizing & pumping station.	Borough Council.
Mont.	Havre	8 p.m., July 20	Constructing five miles of sewer, filtration and disposal plant	S. L. Hanley, City Engr.
Del.	Wilmington	10 a.m., July 21	Supplying sewer department for period of one year with cement, terra cotta pipe, castings, sewer brick, etc.	Directors of St. & Sew. Dept.
N. J.	New Brunswick	10 a.m., July 21	120,000 feet of ditching	D. J. Headlee, Ex. Off.
Ill.	Berwyn	8 p.m., July 21	Constructing one sewer	O. N. Lindahl, Secy. B. L. I.
O.	Canal Dover	Noon, July 22	Constructing sewage purification plant. (See Proposal ad.)	Director Public Service.
Md.	Kensington	July 23	Sewer and water system costing \$50,000.	H. W. Hutton, Engr., Wilmington, Del.
N. Y.	Bedford Hills	July 24	Making addition and alterations to sewerage and sewage disposal plant	J. Wood, Pres. Bd. Mgrs.
O.	Springfield Lake	Noon, July 26	Sewerage system and sewage treatment plant.	R. W. Pratt, Con. Eng., Cleveland.
Tex.	Houston Heights	8 p.m., July 27	Thirty miles of vit. pipe sewer, from 8-24 inches.	H. F. Isbell, Mayor.
Va.	Roanoke	Noon, July 28	Storm drains, sewers, etc., in various streets.	M. D. Moss, Asst. C. C.
N. J.	Newark	July 28	Constructing main intercepting sewer in Passaic.	Passaic Valley Sew. Comm.
Ind.	Hammond	10 a.m., July 31	12-inch vit. socket pipe sewer.	Board Public Works
Ia.	Baton Rouge	Noon, Aug. 1	36,000 ft. vit. pipe sewer, 6-12-inch, together with c. i. pipe, flush tanks, etc.	Mayor.
O.	Sandusky	Aug. 14	Constructing one mile ditch	L. A. Schultz, Engr.

WATER SUPPLY.

Fla.	Daytona Beach	7 p.m., July 11	Constructing waterworks system complete.	U. S. Shelley, Mayor
Kan.	Topeka	9.30 a.m., July 13	Constructing water mains	C. B. Burge, City Clerk.
Mich.	Highland Park	July 13	Constructing water supply mains, 30 inches c. i. pipe.	Village Clerk.
Ill.	Chicago	11 a.m., July 13	Condenser platform, stairs, railing, etc., for pumping sta.	L. E. McGann, Comr. P. S.
Ill.	Chicago	11 a.m., July 13	100 drinking fountains.	L. E. McGann, Comr. P. S.
N. Y.	New York	2 p.m., July 13	Hauling & laying wtr. mains & appurtenances in Bronx.	W. Williams, Comr. Water
Ont.	Orillia	9 a.m., July 13	Water works system and pumping equipment.	Water & Light Com.
S. D.	Winner	8 p.m., July 13	Extending water works system	C. Maule, City Aud.
Ia.	Lake City	8 p.m., July 13	12-inch tubular well with strainer, pump, motor, etc.	J. M. Pickle, City Clk.
Minn.	Arlington	7.30 p.m., July 14	Water works system	H. A. Miffert, Vil. Clk.
Ill.	Great Lakes	10 a.m., July 14	Galvanized and c. i. fittings, globe valves, etc.	Bureau Sup. & Acts., Navy Dept., Washington, D. C.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Ind., Tell City	July 14	14..	Furnishing new power plant equipment for handling city water supply	City Clerk.
N. Y., New York	11 a.m., July 14	14..	Roofing with reinforced concrete tile 46 superstructures along Catskill aqueduct	Comrs. Water Supply, Municipal Bldg.
Tenn., Memphis	Noon, July 14	14..	Supplying pumping station and equipment	C. C. Pashey, City Clk.
N. M., Hagerman	July 15	15..	Constructing water works system	Town Clerk.
S. D., Tripp	July 15	15..	Sewers and sewage treatment plant	Dakota Engrg. Co., Mitchell
Ill., Chicago	11 a.m., July 15	15..	Constructing and laying water supply pipes	Board Local Imp.
O., Columbus	July 16	16..	Installing in pumping station ten million gallon capacity pumping engine, and two twelve million gallon capacity pumping engines	Board Public Service.
O., Cleveland	Noon, July 16	16..	Supplying pig lead	A. R. Callow, Comr. Pur. & Sup.
O., Cleveland	Noon, July 19	19..	Furnishing and driving sheet steel piling; stop cock boxes	A. R. Callow, Com. P. & Sup.
O., Frankford	July 21	21..	Installing water works system	G. H. Shaddel, Clk. Bd. Trustees, Public Affairs.
Ga., La Grange	July 21	21..	Water works system, including two brick pumping stations, filtration plant and electric pumping machinery, etc.	J. D. Edmundson, Mayor.
Ark., Arkansas City	July 21	21..	Improving water works by extending pumping station, furnishing 2,000,000-gallon pumping engine, 250,000-gallon tower and tank, etc.	City Clerk.
O., Clyde	July 21	21..	Improving water works by repairing wells, steam pump, etc.	Clerk, Board Trustees.
Ill., Berwyn	8 p.m., July 21	21..	Water service supply pipe (4 jobs)	Board Local Imp.
Utah., Bingham Canyon	2 p.m., July 22	22..	220 tons 6-8-inch c-i. water pipe and 4,000 lbs. special castings	F. W. Quinn, Town Clk.
N. Y., Hudson	7.30 p.m., July 22	22..	Waterproofing wall and constructing 6-in. reinforced cut-off wall	M. J. O'Hara, City Engr.
O., Cleveland	Noon, July 23	23..	Constructing a concrete coagulant house and wash water reservoir. (See Proposal ad.)	A. R. Callow, Comr. Pub. & Supplies.
Ont., Orillia	July 27	27..	Furnishing and erecting motor driven turbine pumps and equipment	Secy., Water & Light Co.
Me., Pownall	July 30	30..	Constructing concrete reservoir	A. B. Fels, Portland.
Colo., Denver	2 p.m., July 30	30..	1,750 60-inch; 8,560 32-inch, and 2,460 24-inch continuous wood stave pipe	U. S. Reclamation Service.
Va., Norfolk	Aug. 1	1..	Furnishing 5,300 meters for water department	Board of Control.
Neb., Dalton	Aug. 27	27..	Constructing water works, cost \$7,200	J. L. Willis, Village Clk.
LIGHTING AND POWER.				
Colo., Las Animas	July 11	11..	Furnishing and installing four 100-h. p. water tube boilers, fan and motor valves, piping, etc.	Bur. Yards & Docks, Navy Dept., Wash., D. C.
Pa., Tarentum	July 13	13..	Reinforced concrete power house	Borough Council.
Minn., St. Paul	7 p.m., July 13	13..	Complete electrical equipment in high school	Board of Education.
N. Y., Alden	July 14	14..	Supplying gas pipe lines and connections	A. G. Hinkley, Clerk.
O., Cleveland	Noon, July 17	17..	Weather proof copper wire and lead covered cable	A. R. Callow, Comr. Pur. & S.
La., New Orleans	Noon, July 30	30..	Wire and cable for drainage system	Sewerage & Water Board.
O., Mansfield	Aug. 1	1..	Furnishing electric light for city	O. Hursh, Dir. of Service
FIRE EQUIPMENT.				
N. Y., New York	10.30 a.m., July 13	13..	Extension of fire alarm telegraph system	R. Adamson, Fire Comr.
Ind., Hammond	July 13	13..	Motor city service truck	Board Public Works.
N. J., Wallington	8 p.m., July 13	13..	Furnishing a fire alarm telegraph system	N. O. Berry, Boro. Clerk
Mont., Kalispel	July 15	15..	One motor-driven triple combination wagon	City Clerk.
Mont., Havre	8 p.m., July 20	20..	Furnishing combination hose and chemical motor car	S. L. Hanley, City Engr.
BRIDGES.				
Ariz., Phoenix	Noon, July 13	13..	Constructing 25-ft. span reinforced concrete bridge	J. Miller, Jr., Clk. Bd. Supv.
N. J., Perth Amboy	2.30 p.m., July 13	13..	Constructing steel and concrete culvert	Bd. Chosen Freeholders, New Brunswick.
Minn., Hastings	Noon, July 13	13..	Three reinforced concrete bridges	P. A. Hoffman, Co. Aud.
Pa., Wilkes-Barre	Noon, July 14	14..	Several reinforced concrete bridges	F. R. Hendershot, Cont.
Conn., Hartford	2 p.m., July 14	14..	Constructing several reinforced concrete bridges	C. J. Bennett, State Hwy. Com.
Pa., Ebensburg	Noon, July 14	14..	Constructing several reinforced concrete bridges	C. G. Campbell, Co. Cont.
O., New Philadelphia	July 15	15..	Constructing a 100-ft. concrete arch bridge	R. H. Misstofer, Aud.
N. J., Elizabeth	2.30 p.m., July 16	16..	Constructing bridges in three towns	J. L. Bauer, Co. Engineer
N. Y., Ithaca	July 18	18..	Constructing highway bridge	F. Hanchow, Town Clk.
Ind., Marion	10 a.m., July 20	20..	Constructing flat top culvert	Co. Comrs.
Pa., Rochester Mills	9 a.m., July 25	25..	Erecting 2 reinforced concrete bridges, 12 ft. span each	Board Supervisors.
N. J., N. Brunswick	2.30 p.m., July 30	30..	Constructing steel and concrete bridge	A. J. Gebhardt, Director.
MISCELLANEOUS.				
N. H., Portsmouth	July 11	11..	Furnishing and installing after-cooler	Bureau Yds. and Docks, Navy Dept., Wash., D. C.
O., Cincinnati	Noon, July 13	13..	Constructing concrete retaining wall	C. W. Handman, Bus. Mgr.
Ill., Waukegan	5 p.m., July 13	13..	Furnishing 360 street signs	M. J. Douthitt, C. E.
N. J., East Orange	8 p.m., July 13	13..	Furnishing auto truck for sewer dept., 3-ton capacity	A. I. Webster, City Clerk
O., Youngstown	Noon, July 13	13..	One 10-ton hand-power traveling crane	H. C. Fox, Clerk
Minn., Duluth	11 a.m., July 13	13..	Furnishing four-passenger automobile	C. S. Palmer, City Clerk.
Pa., Beaver	Noon, July 14	14..	200 bags cement	County Comrs.
O., Akron	Noon, July 14	14..	Buildings for garbage reduction work	C. P. Parker, Dir. P. S.
N. Y., Waterford	8 p.m., July 15	15..	Constructing Town Hall building	R. H. Stubbs, Pres.
Ill., Chicago	11 a.m., July 15	15..	Constructing four public comfort stations	L. E. McGann, Com. Pub. Serv.
Cal., San Francisco	Aug. 19	19..	Constructing Twin Peaks tunnel, cost about \$3,300,000	Board Public Works
N. Y., Hudson	7.30 p.m., July 22	22..	Furnishing material and labor for waterproofing old wall and constructing 6-in. reinforced concrete cutoff wall (See proposal ad.)	M. J. O'Hara, City Engr.
Cal., Los Angeles	July 22	22..	Furnishing materials and erecting riveted steel pipe	U. S. Reclam. Service
Ia., Le Mars	3 p.m., July 23	23..	Constructing complete post office	O. Wenderoth, Sup. Arch. Treasury Dept., Wash., D. C.
Ind., Gary	3 p.m., Aug. 6	6..	Constructing two-story post office	O. Wenderoth, Sup. Architect, Treasury Dept., Washington

STREETS AND ROADS

Gadsden, Ala.—City Council is considering paving of Forest Ave., from Seventh to Twelfth St.

Jasper, Ala.—Walker County will vote on July 13, on \$30,000 bond issue for good roads.

Marion, Ala.—Perry county will spend

\$6,500 in connection with state fund in extending its system of good roads.

Fort Smith, Ark.—Following bids have been received for paving improvement district No. 9: W. W. Fuller, Oklahoma City, brick block, asphalt filler, \$1.89; brick blocks, grout filler, \$1.78; monolithic concrete, \$1; curbing, 40c per lin. ft. Burke Bros., Fort Smith, creosoted wood block, \$2.70; brick, \$1.80; mono-

lithic concrete, \$1.05; curbing, 45c. Kaw Paving Co., Topeka, Kan., creosoted wood block, \$2.49; brick block, \$2.18; asphalt concrete, \$1.66; curbing, 33c. Williams & Payne, Fort Smith, creosoted wood blocks, \$2.51; brick, \$2.22; monolithic concrete, 93c; curbing, 32c.

Pomona, Cal.—City Council has voted to pass resolutions ordering street work to be done on streets of Pomona which

are to be paved in near future and it also voted to pass the resolutions inviting bids upon this work.

Red Bluff, Cal.—County Surveyor W. F. Luning and Supervisor Asa Peaks have just completed survey of new road over Coast Range to Round Valley, Mendocino County.

Stockton, Cal.—When the voters sanction issuance of bonds on July 7 to provide funds for street improvement, work will begin almost immediately thereafter, according to statement made by City Engineer Compton.

Jacksonville, Fla.—By adopted resolution of Board of County Commissioners vote of people on August 4 will decide whether or not county of Duval is to be bonded in sum of \$2,000,000, which sum is to take care of present indebtedness of county, to pave certain specified roadways and to build certain bridges.

Jacksonville, Fla.—Modern improvements, including laying of latest and most approved type of street paving on twenty-six city thoroughfares, replacing of present T rails with heavy groove rails on street car tracks—in all work amounting to some \$400,000—will be started within next thirty days and present plans provide for finishing of these metropolitan improvements by time winter season opens.

Elgin, Ill.—Bids will be received by city until 10 a. m., July 14, for construction of 7,846 sq. yds. asphaltic concrete pavement in Hill Ave. and 6,436 sq. yds. asphaltic concrete pavement in Addison St. W. F. Sylla is City Clerk.

La Salle, Ill.—Preparations are being made for immediate advertising for bids for new concrete roads in Cook county according to George A. Quinlan, County Superintendent of Highways. County Building Board has recommended that roads which are to be constructed with state aid be built of concrete instead of vitrified brick. This means that 21 miles of improved road will be built this year instead of 14, as concrete road is cheaper.

Oak Park, Ill.—Special ordinances have been adopted as follows: For pavement, with asphaltic conc., of Gunderson from 12th to Harrison at an estimated cost of \$25,000. For pavement, with asphaltic concrete, of Cuyler from 12th to Harrison, at an estimated cost of \$25,000.

Springfield, Ill.—Ordinances have been passed providing for paving of Ash St., between Sixth and Fifteenth Sts., and Eleventh St., between East South Grand Ave. and Ash St., material to be brick with sandstone curbing.

Columbia City, Ind.—The necessary two-thirds vote for proposed improvements on J. C. Lawrence, Steven Shaw and George K. Sisson Rds., Union township, has been obtained. The roads average 6 miles and graveling will cost about \$57,000. Bids will be received by County Surveyor Plummer and will be submitted to the commissioners at their July session.

Waukegan, Ill.—Board of Local Improvement will receive bids on July 13 at 8 p. m. for two paving jobs of asphaltic concrete on 5-in. concrete base, 10,830 sq. yds., 6,000 ft. of concrete curb and gutter, grading, etc. Engineer's estimate, \$26,664. W. J. Donthitt is City Engineer.

Evansville, Ind.—County Treasurer Carl Lauenstein has sold gravel road bonds amounting to \$5,200 to Walker & Walker.

Indianapolis, Ind.—Resolution and specifications for paving of East New York St. from Arsenal Ave. to Belt railway tracks have been adopted by Board of Public Works. Estimated cost, based on wooden block material, is about \$75,000. If pavement is built it will give new paved roadway from downtown district to Irvington, East New York St. from Belt railway tracks to Emerson Ave. having been paved about two years ago.

Indianapolis, Ind.—Resolution has been adopted for paving Bellefontaine St. from 30th St. to Sutherland Ave., the estimated cost, based on wooden block, being \$17,176.

Logansport, Ind.—Gravel road bonds for three roads in Cass county have been sold by Indianapolis and Cincinnati brokers. Two sets of bonds for Earl roads were sold to Galvin L. Payne & Co., of Indianapolis, their bid being on road No. 1, \$18,000 par value, accrued interest and \$127 premium, and on road No. 2, \$6,500 par value, accrued interest and \$60 premium. Bonds for the Hutchinson road were sold to J. F. Wild & Co., of Indianapolis, for \$3,682 par value and \$24 premium.

Winchester, Ind.—Treasurer Henry Good has sold improvement bonds for

Fred Miller and R. V. Murray Rds. The Miller issue was for \$16,200 and was sold to the Commercial National Bank of Union City. The Murray issue was for \$9,900 and was sold to Randolph County Bank of this city. The Miller Rd. is on White River, Franklin and Monroe Twp. lines and Murray Rd. is in Franklin Twp.

Dubuque, Ia.—B. H. Burrell, senior highway engineer for United States Government on Hawkeye highway, the road between Dubuque and Dyersville, has stated that plans for that highway between Dubuque and Centralia have been completed and forwarded to Washington for approval of department officials.

Baltimore, Md.—State of Maryland, through Board of Public Works, will on July sixteenth open bids for large amount of State bonds. The par value of the bonds to be sold on that date is \$3,950,000. Of new State loan a flat \$3,000,000 is to go for roads and remainder, \$950,000 is for omnibus loan, which includes all important enterprises in State outside of roads.

Cumberland, Md.—Resolutions in favor of the \$150,000 bond issue for paving of unimproved streets have been read and adopted by City Council.

Fall River, Mass.—Mayor Kay will send order to Board of Aldermen providing for \$25,000 for highway work.

Milford, Mass.—Gov. David I. Walsh has signed bill yesterday authorizing improvements contemplated in legislation relating to highway between Milford and Southboro through Hopkinton and expectation is that work in this respect will be begun at once.

Sault Ste. Marie, Mich.—Estimate of cost of Portage Ave. pavement has been submitted by Board of Public Works as \$36,100. Board also estimated that cost of Court St. sewer would be \$1,320.

Fremont, Neb.—Proposition is being considered of building one mile of concrete road along Lincoln highway in Dodge County.

Hammonton, N. J.—Council has adopted resolution favoring early construction of Atlantic County Board of Freeholders, proposed new boulevard from Absecon to Ohio Ave., Atlantic City.

Perth Amboy, N. J.—With an idea to encourage competition on street paving work, Mayor Fred Garretson has vetoed resolution passed by Board of Aldermen to award contracts for paving Oak, Mechanic and Cortlandt streets to Hastings Paving Company.

Binghamton, N. Y.—If taxpayers of village of Port Dickinson will raise its share, a brick pavement will be constructed by state along North Chenango St. through village, connecting city brick pavement with Fenton macadam highway. Proposed pavement would cost about \$70,000, of which village would pay \$32,000. Special election will be held next month to allow taxpayers to express their opinion as to whether they desire to have the village bonded in amount of \$32,000 to make work possible. Plans for pavement call for brick construction 32 ft. wide, of which the village will share the cost of 16 ft. The brick will be abutted with concrete shoulders and gutters.

Brooklyn, N. Y.—The Corporate Stock Committee, of Board of Estimate has submitted report increasing from \$25,000 to \$34,000, corporate stock appropriation, which is to pay cost of regulating, grading and paving Shell Road, from Thompson Ave. to Jackson Ave., Borough of Queens.

Buffalo, N. Y.—Aldermen have ordered paving of Virginia St., from Delaware Ave. to Cottage St.; South Elmwood Ave., from Edward to Virginia St., and a triangular piece in asylum lot opposite Elmwood Music Hall, cost of which will be \$3,092.77.

Newburgh, N. Y.—Improvement of William St. is being planned; estimated cost \$28,000. D. J. Coutant is City Clerk.

Niagara Falls, N. Y.—Board of Assessors has reported to Board of Public Works that majority of property owners in Linwood Ave., between Eighteenth and Twenty-second Sts., and in Michigan Ave., between Fifteenth and Twenty-second Sts., had signed for asphalt block pavement. Work will be proceeded with. Public Service Contracting Co. is low bidder on this kind of pavement.

White Plains, N. Y.—Active work of reclaiming and beautifying Bronx River from Bronx Park to Kensico Reservoir, distance of 15 miles, and construction of what is believed will be one of most beautiful parkways in world will begin before end of year.

Newton, N. C.—Bond issue of \$5,000 for paving and improving streets is being considered.

Winston-Salem, N. C.—The government has appropriated \$33,450 for construction

of tri-county highway from this city to Statesville.

Cincinnati, O.—City Commissioners have passed ordinance ordering reconstruction of Washington Ave. with vitrified brick, from First to Third Sts. Contract will be let within short time. Commissioner Merlidge estimates cost at \$3,013.

Cincinnati, O.—Henry Rininger's bid of \$2,953.50 for repair of Valley Junction Rd. and Ben Scull's bid of \$4,300 for repair of West Miami River Rd. has been accepted.

Lorain, O.—Bids will be received on July 15 for improving of various streets. Approximate quantities: East 28th St., 14,600 sq. yds., and East 31st St., 15,900 sq. yds. C. M. Osborn is City Engr.

Erle, Pa.—Alexander Aiken, second assistant city engineer, and corps of engineers have begun work to obtain level of Dunn St., upon which it is proposed to establish a boulevard.

Erle, Pa.—Council has authorized number of street improvements in various sections of city. Director Dundon of safety department was authorized to advertise for proposals to be received July 9 for aerial fire truck.

Philadelphia, Pa.—Highway Bureau is at work on the plans for improving the country roads, for which \$500,000 is provided.

Pottsville, Pa.—City Engineer Wm. L. Pugh is perfecting plans and specifications for proposed paving of West Market St., from Fourth to Twelfth Sts., and expects to have them completed within week, when, it is likely Supt. J. H. Nichol, of the Highway Department, will begin advertising for bids for various kinds of wood and brick paving.

York, Pa.—Bonds in sum of \$200,000 have been sold for paving streets and building sewers.

Brownwood, Tex.—City Council has instructed street committee to pave in usual manner two more streets. Petitions from property owners along these streets had previously been presented.

Cotulla, Tex.—La Salle county has voted \$40,000 bond issue for good roads.

Ennis, Tex.—Bonds in sum of \$197,000 have been voted for paving, water, sewerage, etc.

Lavonia, Tex.—In bond election for road district No. 1 vote was: For bond 33, against 31. A majority of two in favor of issuing \$60,000 worth of bonds to build good roads in this district.

San Antonio, Tex.—The County Judge and B. F. Heidle, chief inspector from office of public roads at Washington, have signed contract between Bexar county and United States Government for construction of that portion of San Antonio-Austin post road which lies in Bexar county. Under the arrangement Bexar county will pay \$29,400 and the Government \$14,110, giving a total of \$43,510, which includes cost of bridges en route.

Bristol, Va.—Arrangements have been made for construction of most of unfinished links in Virginia counties of Bristol-to-Lexington (Ky.) highway. Within another year this road will be completed from Bristol to Cumberland Gap.

Norfolk, Va.—Aside from approving proposition for issuance of \$40,000 bonds for improvement of Core tract, under similar conditions that prevailed in the Westover and Greater Ghent developmental proposition, public improvement committee of city council has proceeded to cut in half appropriations that are to be made for permanent improvements during fiscal year beginning July 1. The improvement committee reduced amount to \$50,102, as follows: Paving Oropax St., Olney Rd. to Westover Ave., including water, \$8,344.00; paving 16th St., including water, \$9,750.00; paving Theford St. from Redgate Ave. to Armistead Bridge Rd., \$5,896.50; smooth paving Tazewell St. to Granby, \$2,790.00; Greenway Court, \$2,325.00; extension of Falkland St. to connect with Lovitt Ave., construction of bridge, etc., \$8,000.00; paving Ainsworth St., including water, \$2,064.00; repairs to Cedar Grove cemetery wall, \$200.00; extension of Elmwood cemetery drain across Granby St., \$9,600.00; paving Claremont St. from Ambler St. to Graydon Ave., \$812.50; paving Williamson's lane, \$320.00; total, \$50,102.00.

Sheboygan, Wis.—Bids for improvement of lower river road have been rejected, and new bids will be called for.

Wautoma, Wis.—At special meeting of village board the contract for paving of Main street with concrete was let to Neck Bros. of Montello.

CONTRACTS AWARDED.

Manhattan Beach, Cal.—To Barber Asphalt Paving Co. for grading, paving, etc., in 1st St., 16th St. and 23d St., at \$15,380.69, \$9,209.15 and \$8,757.11, respectively.

Redwood, Cal.—The contract for grading new highway from Folger Pl. on top of La Honda grade to Woodruff creek has been awarded by Supervisors to Mahoney Brothers of San Francisco, whose bid of \$46,983.19 was lowest.

Sacramento, Cal.—By State Board of Control, contracts for state highway work as follows: Ventura county, Modern Constr. Co., Marsh-Strong bldg., Los Angeles, Cal., \$35,516.35; Los Angeles county, Lee Moor Contr. Co., Caliente, Cal., \$153,019.10; Solano county, Commary-Peterson Co., San Francisco, Cal., \$105,981.70; Santa Clara county, H. L. Peterson and A. J. Grier, San Francisco, \$40,877.50; Humboldt county, Frank L. Smith, Eureka, Cal., \$67,865.30; Butte county, P. L. Burr, San Francisco, \$55,612.92; Shasta county, E. Ralondi, San Francisco, \$63,245; Tekama county, M. Jacinto, Sacramento, \$53,679.40; Glenn county, P. H. Moore, Oakland, Cal., \$37,209.50.

Santa Ana, Cal.—On recommendation of the County Highway Commission Board of Supervisors have let contract for paving of road between Bay City and Los Alamitos. Successful bidder was Conner Construction Co., and bid was \$29,887.18.

Santa Ana, Cal.—Max L. Hubermann was given contract for paving West 5th St. from Garnsey to Baker. His bid, received at previous meeting, was 11.75 cts. per sq. ft.

Decatur, Ill.—To S. A. Tuttle, Mattes bldg., for 3,900 sq. yds. brick paving in N. Calhoun St., 10M sq. yds. brick paving and 6,688 lin. ft. conc. curb and gutter in Franklin St., and 12M sq. yds. wood block paving in Main St.

Indianapolis, Ind.—Board has awarded contract to William F. Moore for paving with first grade asphalt, Dearborn St., from New York to Michigan St., at \$3.35 a lineal foot on each side of the street.

Ft. Wayne, Ind.—By Comrs. of Allen county, contrs. for conc. rds., as follows: 13,648 ft. New Haven Rd. No. 1, and 1½ miles New Haven Rd. No. 2, to Brooks Constr. Co., Ft. Wayne, at \$31,200 and \$18,200; 9,667 ft. Portage Ave. Rd. to Davenport & McReynolds, Kokomo, Ind., at \$23,192.65. R. W. Guenther is engineer.

Council Bluffs, Ia.—Contracts between city and E. A. Wickham for paving of North Broadway, South Ave., Tostevin St., Graham Ave. and High St. have been approved by City Council. Work, according to contractors, will be started at once and all streets are to be paved before November 1.

Coffeyville, Kan.—City Commissioners have let sidewalk bids to Stuckey Bros., who made lowest bid, which was 41 cts. a lin. ft. Sidewalks will be brick, and are to be built on 16 lots in South Side addition.

Boston, Mass.—Mayor Curley has signed a contract with John F. Beatty, contractors, for bitulithic pavement on Eustis street, from Dearborn to Magazine street, price being \$14,578, as against estimate of city engineers of \$16,373. Beatty was lowest of six bidders. Another contract given to Beatty is that for paving of Zeigler street, between Warren and Dearborn, at \$6,028.

Holyoke, Mass.—At special meeting of Board of Public Works Daniel O'Connell Sons were awarded contract for pavement to be used in Northampton and Dwight Sts. Pavement is their type A and is similar to that used in construction of Springfield Rd. Cost of new pavement will be \$1.45 a sq. ft.

Marshall, Mich.—To Andrews Asphalt Paving Co., Hamilton, O., contr. at \$56,090.30, for paving East and West State St. with sheet asphalt. Smith & Boulay Co., engrs., 322 Nasby bldg., Toledo, O.

Buhl, Minn.—For paving about 20,000 yds. of bitulithic to General Contracting Co. of St. Paul at \$1.81 per sq. yd.

Perth Amboy, N. J.—Bids have been received and opened for paving Cortlandt street from Hall avenue to its northerly terminus; Mechanic street from Washington street to Buckingham avenue; Oak street, from Smith street to New Brunswick avenue, with two-inch asphalt blocks, as follows: Cortlandt street, Hastings Paving Co. Excavation, per cu. yd., 68 cts.; concrete, per cu. yd., \$5.76; old curb reset, per lineal ft., 50 cts.; new curb, per lineal ft., 80 cts.; asphalt block, per sq. yd., \$1.48; Mechanic street, Hastings Paving Co. Excavation, per cu. yd., 68 cts.; concrete, per cu. yd., \$5.76; old curb reset, per

lineal ft., 50 cts.; new curb, per lineal ft., 80 cts.; asphalt block, per sq. yd., \$1.50. Oak street, Hastings Paving Co. Excavation, per cu. yd., 68 cts.; concrete, per cu. yd., \$5.76; old curb reset, per lineal ft., 50 cts.; new curb, per lineal ft., 80 cts.; Asphalt block, per sq. yd., \$1.50. Contracts for paving Oak street, Mechanic street and Cortlandt street will be awarded to Hastings Paving Co., they being only bidders for same.

Binghamton, N. Y.—One macadam highway repair contract has been let during this week, that on highway known as Norwich-North, Norwich Rd., in Chenango county. Lowest bid on this job was \$17,847.50, being placed by Paddelford & King of Sherburne. Nathan E. Young of Harpursville was lowest bidder on fine piece of construction work, east branch Sullivan county line road. His bid was \$96,918.25.

Lockport, N. Y.—The aldermanic street committee has approved of bids of C. N. Stainthorpe and Co., for new asphalt pavement on Webb and Lewis street. Both proposals were in sum of \$8,594.65. C. B. Whitmore Co., was only other bidder on both contracts.

Patchogue, L. I., N. Y.—Large contract has been awarded to F. Arrigoni & Brother, of Middletown, Conn. The contract referred to is for construction of a section of concrete road, thirteen miles long, at Patchogue, L. I., and price is to be nearly \$157,000.

Saranac Lake, N. Y.—The Messrs. Beede Bros., contractors, will make the improvement of Riverside Dr. according to plans prepared by E. M. Merrill, the village engineer. Bid of Beede Bros., at approximately \$6,500 for work, was about \$200 lower than that of any other bidder.

Hamilton, O.—Garver and Wirtz, of this city, have been awarded a contract to pave six miles of road with brick, between Urbana and Piqua, at their bid of \$63,039. Contract was awarded by State Highway Commissioner Marker.

Albany, Ore.—Contracts have been signed by city for improving 11 blocks on Ninth St. with hard surface pavement. The Asphalt Machinery Co., of Seattle, will do work at \$1.15 per sq. yd.

New Castle, Pa.—M. E. Miller has proved most successful bidder for three paving contracts—North Jefferson St. from Wallace Ave. 159 ft. south, Wilmington Ave. and No. Jefferson St. from Wallace Ave. to Boyles Ave. The following bids were considered: Jefferson St. from Wallace Ave. to Boyles Ave., engineer's estimate, \$3,751.75; C. E. Kimbrough, \$3,949.50; Woods and Golder, \$3,867; Thorson and McKeever, \$3,853.75; Burns Bros., \$3,751.70; M. E. Miller, \$3,683. Jefferson St. from Wallace Ave. south, to be repaved, engineer's estimate, \$2,490.70; C. E. Kimbrough, \$2,517.36; Woods and Golder, \$2,541.24; Thorson and McKeever, \$2,545.70; M. E. Miller, \$2,391.54. Wilmington Ave., engineer's estimate, \$12,900.45; Thorson and McKeever, \$13,412.05; Woods and Golder, \$12,964.66; Burns Bros., \$12,691.50; M. E. Miller, \$12,335.86.

Belton, Tex.—Commissioners' Court has let contract to J. F. Hanner for road work for which bonds were recently voted in Heidenheimer and Little River Precinct. Work will begin next week.

Fort Worth, Tex.—The Roach-Mangin Paving Company of this city shortly will begin work on good roads propositions in Navarro and Hill Counties, amounting to three-quarters of a million dollars. The company has been awarded a contract for approximately seventy miles of rock road running out of Corsicana. There will be between ten and twelve cardinal roads arranged similarly to the cardinal roads running out of Fort Worth. Same company has been given contract for Hill County good roads work. About forty miles of road is to be built there at cost of \$235,000.

Galveston, Tex.—Contract for doing some \$55,000 or \$58,000 worth of paving in city has been awarded to P. J. Vautrin. He was lowest bidder on every proposition submitted. Bids submitted two weeks ago were for three different classes of paving: First with wooden blocks, second with brick on a sand base and third for brick on a concrete base.

Waco, Tex.—Road and bridge contracts, involving total expenditure of \$804,271.43, have been awarded at special meeting of the County Commissioners and members of advisory committee. Work is to begin within next 15 days, and the roads and bridges will be constructed in accordance with specifications prepared by County Engineer R. J. Windrow. Approximately 175 miles of roads will be built in Justice Precincts Nos. 1 and 3. A bond issue to the amount

of \$1,075,000 was voted by people of two precincts last February and cost of work will be defrayed from sale of the bonds purchased by Chicago firm. Bidders for the road work, the amounts they will receive and number of miles of roads they will construct follow: Ockander Brothers, Waco, 1½ miles brick, 16 miles bituminous macadam, .009 miles concrete, 35 miles gravel, 13¼ miles sand and clay, \$197,000; L. H. Pritchett, Waco, 9½ miles waterbound macadam, 33 miles concrete, 7½ miles gravel, \$94,605.13; Flinnagan Bros., Waco, 18 miles waterbound macadam, 1.2 miles concrete, 11½ miles gravel, \$129,448.45; Richard Morey, St. Louis, 15 miles bituminous macadam, 24 miles gravel, 15½ miles waterbound macadam, 1.2 miles concrete, \$262,710.33. The contracts awarded for the bridges are: McCall-Moore Engineering Company, Waco, \$81,226.40; Richard Morey, St. Louis, \$39,899.64. The contractors will furnish all material, except road gravel and bituminous binder for roads and corrugated pipe for bridges.

Norfolk, Va.—Board of Control has awarded contracts and opened bids as follows: L. Lawson, contract for sidewalk and gutter in Pendleton St., between Maple Ave. and Patricia St., Berkeley, 85 cts. sq. yd. for sidewalk and 46 cts. lin. ft. for curb and gutter; Perry R. Kuth & Co., granolithic paving in lane east of Church and 28th Sts., Villa Heights, 82 cts. sq. yd.

Auburn, Wash.—The Pacific highway, from point one-half mile south of Auburn, to Pierce County line, distance of 4 miles, will be paved this summer with No. 1 brick block, best paving material market affords, by terms of contract entered into between Commissioners of King County and Jahn Contracting Co., of Seattle. Highway is now paved with brick from Kent to Auburn. Brick blocks will be placed on 5-inch concrete base, and will cost King County \$121,761.

Niagara Falls, Ont., Can.—County Council has instructed Warden Knoll and county clerk to sign agreement with government for construction of 34 miles of macadam highway through county. Government is to pay one-third of cost of work. Contracts for good roads work were awarded to Standard Construction Company and Standard Crushed Stone Company, both Niagara Falls concerns.

SEWERAGE

Birmingham, Ala.—New sewers are to be laid in business section on North Side.

Windsor, Conn.—The Windsor sewer district has met for purpose of deciding question of building concrete sidewalks within territorial limits of district, and by vote of 38 to 28 it was voted in favor of project. Vote calls for laying of 8½ miles of sidewalks, all of which are to be four feet wide, with exception of west side of Broad street, which are to be six feet wide. Estimated cost of project as estimated by Ford, Buck & Sheldon, incorporated, of Hartford, the district engineers, is \$24,000, and it was voted to appropriate so much of that amount as necessary to do the work.

Chicago Heights, Ill.—City has just advertised for installation of sanitary sewer system, consisting of 4,378 feet of 24-in. double strength tile pipe sewer; 1,325.6 ft. of 20-in. double strength tile pipe sewer; 1,322 ft. of 18-in. double strength tile pipe sewer; 6,837.8 ft. of 12-in. standard strength tile pipe sewer; 663 ft. of 10-in. tile pipe sewer; 48,413.6 ft. of 8-in. tile pipe sewer; 37,884 ft. of 6-in. tile pipe sewer; 60 ft. of 24-in. cast iron sewer; 312 plain manholes, complete with frames, covers, steps and drop connections, and 46 flush manholes. Total estimate, \$103,119. M. H. McCoy is Engineer.

Springfield, Ill.—Specifications have been approved and city clerk authorized to advertise for bids for construction of Ridgely sewer to extend from intersection of Fifteenth St. and North Grand Ave. to point north of fair grounds. It will be in all 2,800 ft. in length.

Springfield, Ill.—Bids will shortly be asked for 3,800 lin. ft. single ring sewer extn. for Harvard Park sewer.

Paducah, Ky.—City Engineer L. A. Washington has been advised by engineering firm of Brown & Clarkson, of Washington, D. C., that preliminary steps for drawing of plans for Third district sewer have practically been completed and will be forwarded immediately to Aetna Engineering Co. at Chicago.

Milford, Me.—At special town meeting of town of Milford, plans for new system of sewers for town were adopted and it was voted to begin shortly work of construction. As yet contract for this work

has not been let, but will, it is understood, be opened shortly to bids from contractors.

Haverhill, Mass.—An extra appropriation of a few thousand dollars for putting sewers in few streets where they are needed and which have been requested by citizens is desired by Alderman Wood. It is expected that at next meeting of Council appropriation will be made for the work.

Duluth, Minn.—The advisability of planning sewer system for New Duluth and Gary when season's rush is over and doing construction work this winter, is being considered by Commissioner Roderrick Murchison, head of works division.

Carthage, Mo.—Advertisement for bids of contractors for construction of proposed big general sanitary sewer in west part of town, has been ordered published.

Bridgeton, N. J.—Ordinance has been passed to authorize the construction of part of sanitary sewer system of City of Bridgeton. L. S. Johnson is President of City Council.

Plainfield, N. J.—Contract has been made between Plainfield, North Plainfield and Dunellen and Engineer George Fuller of New York for the supervision of sewer project. It is estimated that it will cost approximately \$325,000 to construct sewer, so that Mr. Fuller's compensation is about six per cent. of the cost.

Holley, N. Y.—At meeting of the Village Board \$64,400 worth of sewer bonds were awarded to I. W. Sherrell Co., of Poughkeepsie.

Miamisburg, O.—Archts. Cellarius & Dressler, Reibold bldg., Dayton, O., are engineers for sewerage system.

Xenia, O.—Making of preliminary arrangements for construction of new sewerage disposal plant as demanded by state board of health will be taken up by city council. Council now has bids from three expert engineers to prepare plans and specifications for construction of new plant or rebuilding of present plant. One of engineers will be selected and employed to make thorough investigation and prepare plans and specifications for improvement. Engineers who have presented bids are A. Elliott Kimberley of Columbus, Arthur Geisler of Dayton, and Mr. Sherman of Toledo.

Portland, Ore.—Plans have been completed by Bureau of Sewers of Department of Public Works for construction of Long avenue extension of Brooklyn district sewer. These will be filed with council in near future and City Auditor directed to advertise for bids. Cost of sewer is estimated at \$25,000.

Portland, Ore.—Recommendations of Commissioner Dieck that contract for construction of East 55th St. extension of Oak St. sewer system be awarded to K. Y. Azar for vitrified sewer pipe have been rejected by Council, and City Auditor directed to advertise for new proposals.

Connellsville, Pa.—Extension of sewer system is being considered.

Erie, Pa.—City Engineer Briggs was authorized to advertise for proposals to be received July 9 for following work: Storm water sewers in Pine Ave. from 28th St. 2,000 ft. southeast; Cranberry St. from Cascade creek north to 4th St.; in 9th, 10th and 11th Sts., from Cranberry St. west; Cranberry and 19th Sts., from Cascade creek east to Poplar St.; Poplar, Plum, Cascade and Raspberry Sts., from 19th to 26th St.; Cherry, Maple and Hazel Sts., from 26th to 32d St.; 29th St., from Cherry to Schley St.; 30th St., from Cherry to Cochran St., and Stafford Ave., Cherry to Chestnut St.

Philadelphia, Pa.—The Survey Bureau is now at work on plans for \$700,000 worth of main and branch sewer construction.

York, Pa.—City of York has sold its new \$200,000 issue of 4½ per cent. bonds to George S. Fox & Sons and Martin & Co., Philadelphia firms, on a joint bid of \$206,104.20. The money will be devoted to building sanitary and storm water sewers and paving streets.

Warren, R. I.—Installation of sewer system is under consideration to cost about \$50,000.

Beaumont, Tex.—Qualified voters who are property tax payers and who reside in drainage district No. 5, known as Hillebrandt Bayou District, will vote on issuance of \$175,000 worth of bonds for drainage purposes.

Ennis, Tex.—Bond issues aggregating \$197,500 have been carried by a majority ranging from 5 to 11 to 1. The bonds are for sewerage, water, paving, school houses and City Hall.

Spokane, Wash.—Plans are said to be completed by city engineer for construction of Down Town Intercepting sewer, to cost about \$112,000.

CONTRACTS AWARDED.

Exeter, Cal.—To C. D. Vincent, Oakland, Cal., at \$31,431.75, for sewer system.

West Haven, Conn.—By Bd. Selectmen of Town of Orange for constructing about 35 miles of 8 to 24-in. vitr. pipe sewers, etc., from plans of Clyde Potts, 30 Church St., New York, as follows: Disposal works, to Cauldwell & Wingate, 1 Madison Ave., New York, and Atlantic Constr. & Supply Co., Atlantic City, N. J., at \$40,645, to complete Aug. 1, 1915; sewer system to Robt. D. Daly and Thos. F. Maher, associated, New Haven, Conn., at \$182,754, to complete June, 1915. Bids of Robt. D. Daly and Thos. F. Maher, New Haven, Conn., are as follows: Vitrified pipe sewers; 64,805 ft. 8-in., 0-6 ft. deep, 44 cts.; 70,150 ft. 8-in., 6-8 ft. deep, 54 cts.; 5,240 ft. 8-in., 8-10 ft. deep, 75 cts.; 850 ft. 8-in., 10-12 ft. deep, 97 cts.; 4,540 ft. 10-in., 0-6 ft. deep, 54 cts.; 8,645 ft. 10-in., 6-8 ft. deep, 69 cts.; 930 ft. 10-in., 8-10 ft. deep, 86 cts.; 1,960 ft. 12-in., 0-6 ft. deep, 61 cts.; 1,830 ft. 12-in., 6-8 ft. deep, 80 cts.; 550 ft. 12-in., 8-10 ft. deep, 91 cts.; 815 ft. 15-in., 0-6 ft. deep, 75 cts.; 3,620 ft. 15-in., 6-8 ft. deep, 90 cts.; 3,920 ft. 15-in., 8-10 ft. deep, \$1.60; 4,630 ft. 18-in., 0-6 ft. deep, \$1.11; 4,455 ft. 18-in., 6-8 ft. deep, \$1.30; 4,255 ft. 18-in., 8-10 ft. deep, \$1.50; 2,350 ft. 18-in., 10-12 ft. deep, \$1.78; 790 ft. 18-in., 12-14 ft. deep, \$2.20; 2,300 ft. 24-in., 0-6 ft. deep, \$1.90; 2,140 ft. 24-in., 6-8 ft. deep, \$2.28; 2,115 ft. 24-in., 8-10 ft. deep, \$2.43; 1,275 ft. 24-in., 10-12 ft. deep, \$2.63;—ft. 24-in., 12-14 ft. deep, \$3.21; 3,000 ft. deep house connections, 15 cts.; 50 cu. yds. concrete, "A," \$6; 50 cu. yds. concrete, "B," \$17; 2,000 lbs. steel, 5 cts.; 100 cu. yds. fill, 25 cts.; 750 manholes, each \$40; 160 extra ft. manholes, each \$3.92; pumping station, lump sum, \$9,600; 1,700 ft. outfall, \$2.63; 1,000 piles, each \$1; 560 ft. 6-in. c-i. force main, \$1.25. Totals of other bids received, as follows: (a) sewer system; (b) disposal plant. Cauldwell-Wingate and Atlantic Constr. Co., (a) \$184,976; Robt. D. Daly and Thos. F. Maher, (b) \$79,600; John W. Heller, Newark, N. J., (a) \$184,534, (b) \$44,985; B. D. Pierce & Co., Bridgeport, (a) \$187,165; Hanscom Constr. Co., Boston, Mass., (a) \$191,640; Connecticut Eng. & Contr. Co., Norwich, (a) \$47,712; Mason & Hilton, New York, (b) \$49,700.

Berwyn, Ill.—To T. H. Iglehart, Rookery bldg., Chicago, Ill., for sewers in Berwyn.

Aledo, Ill.—To Dalton Bros., Wilmette, Ill., for constructing sewers at \$5,316.

Webster City, Ia.—Drainage ditch contract has been let by board of supervisors of Hamilton and Story counties. The ditch lies in Scott twp. in Hamilton county and in Howard twp. in Story county and was let to J. A. Dunkle of this city complete for \$49,995.

Bay City, Mich.—To P. E. Ryan, at \$4,500, for central sewers in 10th St.

Flint, Mich.—Contracts for all sewer pipe to be used for remainder of year both on new and old work ordered by city have been awarded by Common Council. Successful bidders were J. P. Burroughs & Son of this city and Consolidated Coal Co. of Saginaw. Local concern will supply all vitrified pipe for sanitary sewer work and Saginaw company will furnish cement tile for storm water sewers.

Newark, N. J.—Contract for section of trunk sewer to cross underneath Second River, and for construction of Venturi meter to measure flow of sewage coming into this city, has been awarded to Caldwell-Wingate Company of New York, by Passaic Valley Sewerage Commission. Bid was \$86,592, about one-third of amount of highest bidder. Oscar Daniel Co. of New York, who offered to do work for \$220,680. Seven bids were submitted for work. Successful firm was about \$30,000 lower than second lowest bid.

Perth Amboy, N. J.—Bids have been received and opened for laying ten inch pipe sewer in Donald avenue from Kennedy street to northerly terminus, a twelve inch pipe sewer in Cornell street from Hall avenue to Alpine Cemetery; a twelve inch pipe sewer in Jaques street from Hall avenue to Sutton street; a twelve and eight inch pipe sewer in Amboy avenue from Hall avenue to St. Mary's Cemetery; a twelve and fifteen inch pipe sewer in Johnstone and Meredith streets from Hall avenue to Penn street, as follows:

Johnstone and Meredith Streets Sewer.
Martin Hansen.
12 in. pipe per lin. ft. \$ 1.15
15 in. pipe per lin. ft. 1.25
Manholes, each 35.00

Receiving basins, each 70.00
Thomas F. Dunigan.
12 in. pipe, per lin. ft. 1.21
15 in. pipe, per lin. ft. 1.41
Manholes, each 39.00
Receiving basins, each 75.00

Carl Poulsen.
12 in. pipe, per lin. ft. 1.08
15 in. pipe, per lin. ft. 1.19
Manholes, each 35.00
Receiving basins, each 75.00

Liddle & Pfeiffer.
12 in. pipe, per lin. ft. 1.08
15 in. pipe, per lin. ft. 1.14
Manholes, each 33.00
Receiving basins, each 75.00

Jens W. Rohr.
12 in. pipe, per lin. ft. 1.18
15 in. pipe, per lin. ft. 1.25
Manholes, each 34.00
Receiving basins, each 75.00

Amboy Avenue Sewer.
Martin Hansen.
12 in. pipe, per lin. ft. 1.24
8 in. pipe, per lin. ft.75
Manholes, each 35.00

Thomas F. Dunigan.
12 in. pipe, per lin. ft. 1.21
8 in. pipe, per lin. ft.81
Manholes, each 39.00

Carl Poulsen.
12 in. pipe, per lin. ft. 1.16
8 in. pipe, per lin. ft. 1.10
Manholes, each 34.00

Liddle & Pfeiffer.
12 in. pipe, per lin. ft. 1.08
8 in. pipe, per lin. ft.98
Manholes, each 33.00

Jens W. Rohr.
12 in. pipe, per lin. ft.97
8 in. pipe, per lin. ft.82
Manholes, each 32.00

Jaques Street Sewer.
Martin Hansen.
12 in. pipe, per lin. ft. 1.05
Manholes, each 30.00

Thomas F. Dunigan.
12 in. pipe, per lin. ft. 1.21
Manholes, each 39.00

Carl Poulsen.
12 in. pipe, per lin. ft. 1.00
Manholes, each 33.00

Liddle & Pfeiffer.
12 in. pipe, per lin. ft. 1.08
Manholes, each 33.00

Jens W. Rohr.
12 in. pipe, per lin. ft.84
Manholes, each 30.00

Cornell Street Sewer.
Martin Hansen.
12 in. pipe, per lin. ft. 1.25
Manholes, each 35.00
Receiving basins, each 70.00

Carl Poulsen.
12 in. pipe, per lin. ft. 1.40
Manholes, each 34.00
Receiving basins, each 75.00

Liddle & Pfeiffer.
13 in. pipe, per lin. ft. 1.08
Manholes, each 32.00
Receiving basins, each 75.00

Jens W. Rohr.
12 in. pipe, per lin. ft. 1.17
Manholes, each 34.00
Receiving basins, each 75.00

Donald Avenue Sewer.
Martin Hansen.
10 in. pipe, per lin. ft. 2.35
Manholes, each 45.00

Thomas F. Dunigan.
10 in. pipe, per lin. ft. 2.31
Manholes, each 75.00

Carl Poulsen.
10 in. pipe, per lin. ft. 2.20
Manholes, each 45.00

Liddle & Pfeiffer.
10 in. pipe, per lin. ft. 2.46
Manholes, each 42.00

Contracts for sewers in Johnstone street and Cornell street will be awarded to Liddle & Pfeiffer, they being lowest bidders.

Contracts for sewers in Amboy avenue and Jaques street will be awarded to Jens W. Rohr, he being the lowest bidder.

Contract for sewer in Donald avenue will be awarded to Carl Poulsen, he being lowest bidder.

Lebanon, Pa.—Lebanon Council has made award of contracts for construction of second unit of domestic sewerage in this city. Successful bidders are J. U. Fritchey, of Lancaster, who gets two parts for \$49,025.90 and \$44,377, respectively, and Bennett & Randall, of Greensburg, who get third part for \$50,084.60.

El Paso, Tex.—Mayfield & Shaw, local contractors, have been awarded contract for building new sewer and water extension at Fort Bliss, according to advices received by Capt. Wm. E. Hunt, quartermaster. Work will cost about \$15,000.

Galveston, Tex.—Contract for construction of sewer laterals in certain sections of the city has been awarded to Freund & Quay, their bid for work being \$6,782.20.

San Antonio, Tex.—By City Council for construction of sewers as follows:

Seventh Ward, Truchart & Jackson, \$13,070; Peach St. Dist., Bailey & Reeder, \$16,003; Dignowity Hill Dist., San Antonio Eng. & Constr. Co., \$5,432.

West Milwaukee, Wis.—To M. Synowicz, 1061 1st Ave., Milwaukee, at \$8,240, for sewers in National and 34th Aves., West.

WATER SUPPLY

San Francisco, Cal.—The Park Commission has given permission for construction of reservoir in Lincoln Park at point opposite Fortieth Ave., in accordance with City Engineer O'Shaughnessy's plans. Reservoir, which is to have a capacity of 3,000,000 gallons, will be part of system designed for temporary water supply for western Richmond and Sunset districts. It will be kept filled by number of wells which are to be sunk later. City Engineer is having test holes bored by the Layne & Bowler Corporation.

Arma, Kan.—Election will be held July 14 for voting on \$8,000 bond issue for supplying city with water and light. H. C. Mahon is City Clerk.

Boston, Mass.—Metropolitan Water and Sewerage Board is considering erection of larger standpipe, to cost \$75,000, on Bellevue Hill, West Roxbury.

Dalton, Mass.—Sum of \$200,000 will be borrowed for construction of dams, reservoirs, pipe lines and for installation of meters.

Lowell, Mass.—Report of James H. Carmichael, water commissioner, transmitting to municipal council report of F. A. Barbour, consulting engineer, on improvement of water supply of city of Lowell, has been completed and will be submitted to the municipal council at its next meeting. It is estimated that cost of work proposed, including extension of well system, purification plant, and low lift pumping apparatus, will amount to \$210,000. To allow for contingencies, and to provide for expense of preliminary investigation already made, including driving of test wells, operation at experimental plants at boulevard and Cook wells and engineering, Commissioner Carmichael will recommend to municipal council that sum of \$225,000 be borrowed to complete work of purification of boulevard supply.

Holland, Mich.—Wernette, Bradfield & Mead are preparing plans for new pumping station for city of Holland. It is to be of steel and concrete construction with tile roof and planned to accommodate machinery which town already possesses. Bids for work are to be filed by June 29.

Kalamazoo, Mich.—City Council has placed an order for 100 Nash meters.

Saranac, Mich.—James R. Fitzpatrick, of Hydraulic Engineering Co., has been engaged by village board of Saranac to make estimate of cost of installing water system in village. Test wells and surveys are now being made and report will be made in 2 weeks.

Clyde Park, Mont.—C. H. Green of Spokane, head of engineering and construction firm of C. H. Green & Co., has submitted plans and estimates for proposed municipal waterworks system, preliminary surveys for which were made by Mr. Green's field men a few weeks ago. He made Council attractive proposition and it is likely that another special election will be held within next few weeks for purpose of submitting water bonds question to voters. Mr. Green's estimate of total cost of plant is \$15,800.

Melstone, Mont.—Election has been called to be held July 20 for purpose of voting bonds in sum of \$20,000 to install system of municipal waterworks for Melstone.

Henniker, N. H.—At adjourned town meeting it was voted to purchase property of Henniker Spring Water Co. and to enlarge plant sufficiently to supply village with spring water for fire and other purposes and to appropriate \$50,000 for the purchase.

Newark, N. J.—It has been decided to prepare specifications and to advertise for bids for rebuilding of filtration beds at Overbrook. It is believed most of trap rock will have to be replaced and bottom of beds cleaned.

Perth Amboy, N. J.—Petition has been received for 24-in. water main in Arnold St., and resolution was adopted to procure valves for high level water system at regular meeting of Board of Water Commissioners.

Coxsackie, N. Y.—Special election of taxable residents has been called by village board of Coxsackie for purpose of voting proposition to appropriate and bond village for sum of \$20,000 to in-

crease supply of water for village. Election will be held July 7, between hours of 11 a. m. and 7.30 p. m.

Niagara Falls, N. Y.—Water Board is discussing proposed agreement with Ultra Violet Ray Co. to install new purifying system at municipal water plant. M. F. Hasbrouck of company said his company would pay all cost of installation and give city one year's free trial. If satisfactory the city is to pay cost, estimated at about \$22,000. Committee was instructed to prepare contract and have it ready to submit at meeting on July 6.

Port Jervis, N. Y.—At total cost of two and a half million dollars the 15,000-acre bottom of Ashokan reservoir is to be coated with patent preparation to prevent contamination of water.

Tallhinn, Okla.—Petitions are being circulated to have city council call election for purpose of approving bond issue of \$16,000 for purpose of establishing municipal water plant.

Johnstown, Pa.—Preliminary to building two immense reservoirs to increase service equipment, the Johnstown Water Co. has started corps of men clearing off Sophia Bowser tract in West Taylor Twp. New Laurel Run reservoir will be located there.

Knoxville, Tenn.—High pressure for entire city, increased capacity of reservoir or storage plant and more filtration tubs, it is understood will be recommendation of Dabney H. Maury, hydraulic engineer recently employed by city to examine water plant of city of Knoxville.

Ennis, Tex.—Bonds in sum of \$197,000 have been voted for water, sewerage, paving, etc.

Wheeling, W. Va.—Board of Control favors mechanical filtration system.

Chehalis, Wash.—City comrs. have closed deal with T. C. Rush, owner of Chehalis water system, for purchase of local plant for \$30,000.

CONTRACTS AWARDED.

Santa Barbara, Cal.—By City Water Dept., to Arthur S. Bent Constr. Co., Los Angeles, at \$40,560, for constructing concrete foundation for Gibraltar dam, on Santa Ynez River. Other bids: Mesmer & Rice, Los Angeles, \$42,257; P. H. Ehlers, Los Angeles, \$44,015; Kling Co. & J. C. Beer, Los Angeles, \$43,643; S. M. Kerns, Long Beach, \$39,360; Putnam Stone Co., Pasadena, \$51,708; Russell-Greene & Foell Co., Los Angeles, \$45,852. E. Pyzel is Engr. in Charge.

Worcester, Mass.—To Union Water Meter Co., of Worcester, for furnishing meters for coming year.

Great Falls, Mont.—By City Council, to American Cast Iron Pipe & Fry Co., Minneapolis, Minn., at \$35 per ton, f.o.b. Great Falls, for all c.-i. water pipe, about 300 tons, and special castings, about 20,000 lbs., for fiscal year beginning July 1, 1914.

Albany, N. Y.—To Warren Foundry & Machine Co., New York City, for 1,250 tons of cast-iron pipe.

Eugene, Ore.—Eugene water board has let contract for valves and fittings for new main extensions to Peerless Pacific Co. of Portland. Cost will be approximately \$2,000. C. A. Whipple, superintendent of board, is proceeding with plans for new reservoir on College Hill. He is preparing plans for two different types of reservoir, one of them to be decided upon soon by board. Board has been making soundings at river near pumping plant to determine best means of running pipe across from pumping plant to filter galleries.

South Allentown, Pa.—South Allentown Borough Council has awarded contracts for installation and erection of buildings for water plant. Largest contract was for laying of mains, which was awarded to George H. Hardner, Allentown, the lowest bidder. Other low bidders for this item were Neumeyer, Bethlehem, and Schaeffer and Ackerman, Allentown. Tippet and Wood, Phillipsburg, N. J., was awarded contract for erection of standpipe at \$2,594. Other bidders were Allentown Boiler Works, \$4,525; Hellman Boiler Works, \$3,837; McDermot Bros. Co., \$3,330; Pittsburgh Des Moines Steel Co., \$3,050; Lebanon Boiler Works, \$2,740, and the Chicago Bridge and Iron Co., \$2,800. Contract for foundations for standpipe and pumps was given to Schaeffer and Ackerman, Allentown, at bid of \$4.40 for concrete per cu. yd., 45 cts. for each excavation and \$2 for rock excavation. Other bidders were Allentown Construction Co. and George H.

Hardner. Lowest bidder for erection of two pump houses was George H. Hardner, who won at his figure of \$425 for each house. Three other bids were received, they being Schaeffer and Ackerman, \$1,150 for both; Allentown Construction Co., \$450 for each, and the Weaver Construction Co., \$75 each. Contract for furnishing of valves and hydrants was given to the Rennselear Valve Co., Troy, N. Y., bid of which was \$1,202.45. Two pumps, each with efficiency of 75 per cent., was contract awarded Keystone Drilling Co., Beaver Falls, Pa., at its bid of \$3,150 for two. The McCann Junior Co., Allentown, secured contract for furnishing of two electrical motors, to be made with automatic control. There were two bidders for contract of furnishing of cast iron pipes to be used for mains, the Donaldson Iron Co., Emaus, winning.

Veblen, S. D.—For constructing water works, from plans of Dakota Engr. Co., Mitchell, to Tanner Bros., St. Paul, Minn.

Dallas, Tex.—To Thompson Meter Co., Brooklyn, N. Y., contract for 1,000 meters.

LIGHTING AND POWER

Glenwood, Ia.—Election will be held in Glenwood July 14 to decide whether City Council will be empowered to grant to Red Oak Electric Company a 25-year franchise for purpose of wiring town for electric light and other purposes.

Victor, Idaho.—Committee will investigate feasibility of establishing municipal electric light plant.

Arma, Kan.—City Council has announced bond election for July 14. Question is of voting \$8,000 additional for installation of electric light and water plant.

La Crosse, Kan.—Election will be held to submit proposition to issue \$12,000 in bonds, proceeds to be used for extensions to street lighting system and improvements to municipal electric light plant.

St. Martinsville, La.—Installation of electric light plant is under consideration.

Bagley, Minn.—J. F. Druar, Commercial Building, St. Paul, will prepare plans for rebuilding municipal electric light plant.

Concord, N. H.—Public Service Commission has issued orders authorizing purchase by Manchester Traction, Light & Power Co. of the Nashua Light, Heat & Power Co. and directing that lighting schedule now in effect in Manchester be extended to Nashua at estimated average reduction of 18 per cent. in present Nashua rates.

Binghamton, N. Y.—Douglas Sprague, consulting engineer, 39 Cortlandt St., New York, has been engaged to take charge of construction of proposed municipal electric light plant.

Wyoming, Ohio.—Plans are being prepared for municipal electric light plant.

Devol, Okla.—City Council is considering installation of electric light system.

Lansford, Pa.—Town Council is contemplating building a \$25,000 municipal electric light plant.

Williamsport, Pa.—Installation of system of boulevard lights is being considered.

Fort Worth, Tex.—A movement is on foot to make North Main street, from new bridge by court house to Exchange avenue, a "Great White Way." According to estimates, \$30,000 would be enough to install lighting system.

CONTRACTS AWARDED.

Springfield, Ill.—Contract for purchase and installation of 750 K. V. A. turbo-generator to be placed at Sangamon river to form first unit in municipally owned, combined water and electric light plant has been let by city commission to Westinghouse Electric and Manufacturing Company, of Chicago, at total cost of \$18,650.

Sterling, Ill.—The contract for the installation of the ornamental lighting system has been awarded to the Electric Construction Co. of Rock Island, at \$7,997. The contract provides for 82 lamp standards and also for equipping transforming room in the city hall building.

Holyoke, Mass.—Contract for insulated cable for underground system through central part of city has been awarded to Safety Insulated Cable Com-

pany for \$20,085, by board of fire commissioners.

New Bedford, Mass.—The New Bedford Gas & Edison Light Co., New Bedford, Mass., will erect a 3,000,000 cu. ft. gas holder. The Bartlett Hayward Co., Baltimore, Md., has been awarded the general contract and foundation, consisting of 762 pedestal concrete piles and a 12-ft. concrete slab to MacArthur Concrete Pile & Foundation Co., 11 Pine St., New York City.

Niagara Falls, N. Y.—Mayor Laughlin has signed new street lighting contract between city and Buffalo and Niagara Falls Electric Light & Power Co. Contract is for five years at \$45 per arc light. Old rate was \$52 per arc.

Urbana, O.—New contract with Urban Light Co. covering period of 10 years has been authorized by City Council. Fixed price is as follows: For such 4 ampere metallic flame lamps as may be required, not less than 100, \$57.50 per lamp a year; for such 100 nominal candle-power incandescent lamps as may be required, \$25 per lamp a year; for such 3 light ornamental standards as may be required, \$57.50 per standard a year.

FIRE EQUIPMENT

Sacramento, Cal.—Purchase of additional motor combination chemical and hose wagon is under consideration. Charles A. Bliss is Fire Commissioner.

Bristol, Conn.—Appropriation of \$800 has been recommended for purchase of auto for fire department.

Wilmington, Del.—Mayor Howell has recommended paid fire department and purchase of new apparatus.

Brunswick, Ga.—Election will be held July 22 to vote on bond issue of \$13,500 for purchase of new apparatus.

Waukegan, Ill.—Better fire alarm system is recommended.

Bay City, Mich.—Council has been asked to purchase motor apparatus for West Side.

Lampeer, Mich.—Council is considering purchase of motor fire apparatus.

Butte, Mont.—Fire Committee may purchase 2,000 ft. of 2½-in. and 600 ft. of 3-in. hose. Peter Sanger is Chief.

Camden, N. J.—Appropriation has been voted for purchase of motor apparatus.

Egg Harbor, N. J.—Fire company has been formed and steps have been taken for the purchase of motor combination chemical and hose wagon.

Binghamton, N. Y.—Board of Estimate will receive bids on July 13 for \$50,000 worth of fire department bonds.

Mendville, Pa.—Council has decided to purchase two pieces of fire apparatus—a combination hose and chemical wagon, a combination hose and ladder truck. Price agreed upon was little above \$12,000 for two trucks.

Steelton, Pa.—Purchase of two motor combination chemical and hose wagons and one motor ladder truck is recommended.

Woonsocket, R. I.—Fire department officials are urging that City Council should appropriate \$5,500 for purchase of automobile combination chemical and hose wagon, carrying couple of small ladders, and suggests that this apparatus be housed at No. 1 station on Bernon St.

Hampton, Va.—It is now thought that Hampton's fire apparatus will be motorized in the near future.

CONTRACTS AWARDED.

St. Petersburg, Fla.—Contract for installation of fire alarm system has been awarded to Gamewell Fire Alarm Telegraph Co. of New York City.

Moline, Ill.—To James Boyd and Bro., Inc., Philadelphia, Pa., by City of Moline, for one 75-foot aerial ladder truck. Truck is to be straight gasoline mechanical drive using worm gear.

Indianapolis, Ind.—By Board, contract for 2,000 ft. of fire hose, to the New Jersey Car Spring & Rubber Co., of Jersey City, N. J., at \$1.10 a ft.

Sioux City, Ia.—Contract for fire alarm system, consisting of type C. P. N. I. & Sue fire alarm boxes, switchboard outfit, etc., to Star Electric Company, Binghamton, N. Y.

Centerville, Md.—To Fabric Fire Hose Co., of New York City, contract for hose.

Fall River, Mass.—By Fire Commissioners contract for motor truck to American-La France Co. of Elmira, N. Y. Price is \$11,000, delivery to be within four months. A 75-ft. aerial ladder will be provided on 6-cylinder truck.

Detroit, Mich.—Contract has been awarded for 40 fire alarm boxes to Star Electric Company, Binghamton, N. Y.

Jackson, Mich.—Contract has been awarded for 10 P. N. I. & Sue. fire alarm boxes to Star Electric Co., Binghamton, at \$750.

Lansing, Mich.—Contract for complete central office firm alarm equipment with 30 fire alarm boxes, to Star Electric Co., Binghamton.

Pontiac, Mich.—To Seagrave Co. contract for motor combination chemical and hose wagon, at \$5,500.

Harrisburg, Pa.—Purchase of one motor-driven combination chemical wagon has been awarded to American-La France Fire Engine Co., Elmira, N. Y.

Stroudsburg, Pa.—By city for one combination chemical and hose car to James Boyd & Bro., Inc., Philadelphia. It will have curved sheet steel nose body.

New Bern, S. C.—To American-La France Fire Engine Co. for a Type 12 motor triple combination wagon, at \$9,000.

BRIDGES

Little Rock, Ark.—A movement has been started by City Council for building of another bridge across Arkansas River at this point. The proposed new bridge is to be built at foot of Broadway, and it is expected will cost in neighborhood of \$600,000.

Clinton, Ia.—About 5,000 permanent bridges and culverts will be constructed in Iowa this year.

Leavenworth, Kan.—Commissioners have instructed County Clerk Jesse Hall to advertise for bids for work of replacing and repairing county bridges wrecked by flood. Bids are asked for on Bridge No. 158 on Big Stranger, near Behler place, in Easton Township; Bridge No. 71 on Big Stranger, near the Wells farm in Ackerland Township; and Bridge No. 59 on Walnut Creek, near the Thompson place, in Alexander Township. Bids also are asked for complete new structures.

Haverhill, Mass.—Municipal Council is considering reconstruction of bridge at Millvale reservoir at East Haverhill and plans are to be made for rebuilding of bridge. Present structure is of wood but Council has about decided to reconstruct bridge of concrete.

Winona, Minn.—At estimated expense of \$100,000 Winona is planning to extend its high wagon bridge over into Wisconsin. Plans for extended bridge are being made by St. Paul engineer and War Department will be asked to approve such 5 light ornamental standards as may be required, \$56 per standard a year; for such arc standards as may be required, \$57.50 per standard a year. Ordinance specifies that ornamental standards supporting either two 50 candle-power lamps, or four 50 candle-power and one 80 candle-power lamps shall be as many in number as may be required.

Lestershire, N. Y.—A special election will be held at fire station on July 7, for purpose of voting on expenditure of not to exceed \$4,500 for construction and maintenance of bridge on West Main St. over Choconut Creek.

Tiffin, O.—The State Highway Commission, having approved new plans for proposed Scott bridge across river, several miles south of city, contract has been awarded to Modern Construction Co., of Fremont. Contract price is \$8,140.

Portland, Ore.—County Commissioners have opened 12 bids for construction of new Sandy River bridge, lowest being submitted by Construction Co. for \$17,748 and highest by Elliott Construction Co. for \$20,500. All bids are considerably in excess of estimate. Bids were turned over to a committee. Following are bids: The Construction Co., \$17,748; Portland Bridge Co., \$18,348; F. W. Moore, \$19,056; Robert Wakefield & Co., \$17,900; Coast Bridge Co., \$18,274; Globe Construction Co., \$20,249; Ambrose-Burdal Co., \$19,700; Elliott Construction Co., \$20,500; George H. Griffin, \$17,967; C. W. Raynor, \$18,700; Pacific Bridge Co., \$18,875; Illinois Steel Bridge Co., \$19,998.

Altoona, Pa.—Plans have been discussed for erection of new bridge over Mill run at Broad avenue and Thirty-first street. Logan township authorities are especially desirous of having bridge built and are willing to pay more than third of cost of structure.

Wilkes-Barre, Pa.—Awarding of contract for erection of Nanticoke's free bridge has been postponed by County Commissioners. Eight bids were received by Commissioners. Lowest bidders were Lathrop, Sheats & Henwood

of Scranton, their bid being \$255,200. The second lowest was the Pennsylvania Steel Co. of Steelton, whose bid was \$289,750. The difference between the lowest bidder and the highest was \$92,000. County Commissioners have appropriated \$290,000 for building of bridge.

Chattanooga, Tenn.—At meeting of County Bridge Commission, Engineer Daviss reported that Major Burgess had accepted latest plans submitted for bridge over Tennessee River and so he instructed commission that it could at once begin work preliminary to building of bridge. Structure will be of concrete, or at least two spans will be of concrete, while channel span which is 300-foot span with lift, will be of steel.

CONTRACTS AWARDED.

Denver, Colo.—Contracts for foundation and concrete work on Colfax-Larimer viaduct have been let by Board of Engineers and work probably will be begun this week. Seerie & Varum got contract for foundation construction. C. S. Lambie and C. P. Allen were awarded contract for concrete work from Federal boulevard to 8th St., and Denver and Pueblo Construction Co. was given contract for balance of structure, including Larimer St. viaduct and West Colfax approach. Contract for structural iron work across Platte will be let next month.

Plainfield, N. J.—Bids have been received and contract awarded by special committee of Board of Freeholders for construction of new bridge over Rahway river, in St. Georges avenue, Rahway. The J. F. Shanley Co., of New York, was successful bidder. Estimates submitted by them were lowest on type of bridge selected. The new span will be of reinforced concrete construction, with thirty-seven-foot spread. It will cost \$19,167.67.

Cincinnati, O.—The Commissioners of Hamilton and Clermont Counties have awarded contracts for rebuilding of bridges over Little Miami River at Miamiville and Remington. Bid of \$18,620 by the Rochester Bridge Co. for steel superstructure for Miamiville bridge and that of \$36,070 by Peter Praechter for concrete substructure were accepted. The Rochester Bridge Co.'s bid of \$18,620 for superstructure and that of \$10,344 by Charles Staab for substructure of Remington bridge were accepted.

Dayton, O.—Contract has been awarded by commissioners to N. J. Shaffer for construction of bridge No. 47 in Perry township at his bid of \$467, and to A. F. Weist for construction of bridge No. 134 in Jefferson township at his bid of \$177.

Astoria, Ore.—County Court has awarded contracts for constructing five steel bridges in county to Portland Bridge Co., its bid of \$18,000 being lowest of several submitted. Bridges will be constructed at the following points: Nos. 1 and 2 across the Nehalem River near Vesper; No. 3, across the Clatskanie River, near Olney; No. 4, across Young's River near the falls; No. 5, across the Necanicum River, 8 miles above Seaside.

Wharton, Tex.—Contract has been entered into by Commissioners Court for erection of steel bridge at Peach Creek, to replace one washed away by December flood. Contract was given A. A. Alsbury & Co.

MISCELLANEOUS

Tuscaloosa, Ala.—A tentative site for construction of wharf on Warrior river has been selected by committee consisting of members of city commission, board of trade officers and number of engineers. Wharf is to be located between river bridge and lock 10.

San Francisco, Cal.—Preliminary to calling for bids for construction of Twin Peaks tunnel—the \$4,000,000 project which it is estimated will take 600 days to complete—the City Engineer's office has sent out limited number of printed forms, containing plans and specifications, technical drawings and details concerning big undertaking.

Springfield, Ill.—At instance of Commissioner Hamilton, authorization was given city clerk by ordinance to advertise for bids July 10, for construction of South Sixth street subway under the Wabash railroad at southern extremity of South Sixth street.

Waukegan, Ill.—Commissioner Carl Atterbury, in his annual report for Public Health and Safety department, recommends municipal collection and disposal of garbage.

Waukegan, Ill.—Installation of police alarm system is recommended.

Bohl, Minn.—Village Council has sold bonds in sum of \$125,000 to Edw R. Cooper & Co. of Duluth.

Roselle Park, N. J.—Tentative plans have been made for municipal building to cost \$8,000.

Binghamton, N. Y.—Board of Estimate will receive sealed proposals on July 13 for selling \$70,000 worth of Front St. dyke bonds and \$50,000 worth of fire department bonds.

Brooklyn, N. Y.—Board of Estimate has set aside \$6,668,835 out of city's present borrowing capacity, for establishment of South Brooklyn Marginal Railroad.

Manhasset, L. I., N. Y.—Town Board has engaged D. C. Wills, an engineer of Great Neck, to prepare plans for improvement of Barrow Beach at Roslyn. It is planned to build driveway through center of beach property, plant number of shade trees and erect bath houses and pavilion.

Newburgh, N. Y.—Purchase of street flusher is being considered.

Lakota, N. D.—Lakota is urging special bond issue for new court house and special election will be held, when the voters will determine whether they will approve \$50,000 issue.

Columbus, O.—Bids will be received at office of Board of County Commissioners of Franklin county, Columbus, Ohio, until 10 a. m., July 16, 1914, for purchase of Franklin County Infirmary Maintenance Bonds in sum of \$50,000. John Scott is Clerk of Board.

Ashland, Ore.—Proceeds of \$175,000 bond issue voted on June 9 will be used for development of mineral springs and improvement of City Park.

Erie, Pa.—An ordinance authorizing purchase of park sites and appropriating \$97,850 for the purpose will be passed by Council.

Johnstown, Pa.—Purchase of big truck for garbage hauling is recommended by Mayor Cauffiel.

Johnstown, Pa.—City Clerk has been instructed to get prices, etc., of garbage incinerating plant, as city is unable to agree with owners of local plant.

Philadelphia, Pa.—Proposal blanks are being sent out to investors offering new issue of city 4 per cent. bonds. Total authorization is for \$3,160,000, but only \$1,500,000 will be sold at this time. Proceeds will be used for public improvements of varying nature and to pay mandamusses. Many inquiries have been made and it is expected that small investors will again be active buyers. Bids will be opened in Mayor's office at 12 o'clock, Friday, July 10.

Cuero, Tex.—The drainage bond election has been carried by vote of 229 to 74. Amount of the bond issue is for \$30,000 and purpose is to relieve this city from flood waters from hills above town.

CONTRACTS AWARDED.

Oakland, Cal.—First contracts have been let out of the \$500,000 voted for completion of municipal auditorium by City Council on recommendation of Commissioner of Public Works Harry S. Anderson. The Raymond Granite Co. was awarded contract for granite work on bid of \$75.00. N. C. Clark & Sons were awarded contract for terra cotta work on bid of \$23,900.

Sacramento, Cal.—Contract for construction of new city sump near Riverside Baths has been let by City Commission to Teichert & Ambrose for \$49,480. City Commission has also approved specifications for new outfall sewer which will be part of new sump plant. Approximately \$250,000 is available in fund for sump work, so construction likely will be commenced in near future.

Lawrence, Mass.—By municipal council contract for furnishing cells for new

police station to Van Dorn Iron Works Company of Cleveland, O., who submitted lowest bid of \$10,575.

Newburgh, N. Y.—City Council has decided to ask City Council for appropriation not to exceed \$5,600 for purchase of 5-ton Garford automobile truck and a 1,200-gal. Hvass tank which will be used to sprinkle and flush streets of Newburgh.

New York City, N. Y.—Board of Estimate has approved of award by Public Service Commission of contract for construction of short section of Subway in Times Square, to connect present Broadway line with new Seventh avenue line, to Holbrook, Cabot & Rollins Corporation.

Madill, Okla.—Rooney & Culp, of Muskogee, were best bidders on court house to be built here. They are to complete building in next eight or nine months for sum of \$70,960.

Beaver, Pa.—Following contracts were awarded for reconstruction of county jail: Cook-Anderson & Co., Beaver, awarded general contract; the Pittsburgh Heating Co., Pittsburgh, will install heating and ventilating; Chandley Bros., Beaver Falls, will do plumbing, and Wolf Electric Co., Beaver Falls, was awarded electrical work.

Harrisburg, Pa.—State Highway Commissioner Bigelow has awarded contracts for automobile tires for department machines for coming year. Contract for pneumatic tires and tubes is awarded to Pennsylvania Rubber Co., of Jeanette, and that for solid tires to Gibney Tire & Rubber Co., of Conshohocken.

Falfurrias, Tex.—Bids have been opened and contracts let for erection of Brooks County court house. Successful contractor was the firm of Westlake & Mizzell, of San Antonio, whose bid was \$54,490, which included plumbing and wiring.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Mont.	Billings	2.30 p.m., July 11	Grading road and constructing two rock crossings.	F. E. Williams, Clk. Co. Comrs.
Tex.	Houston	10 a.m., July 13	Shell paving	Co. Comrs.
N. H.	Concord	1 p.m., July 13	Grading and graveling	S. P. Hooker, State Sup. Hwys.
O.	Youngstown	1 p.m., July 14	Improving by slag machine one road, 6,908 yards.	Township Trustees.
O.	Smithville	Noon, July 14	Brick roads through village	Co. Comrs.
Minn.	Aiken	10 a.m., July 14	Grading and curbing 2½ miles.	J. B. Lemaire, Co. Aud.
Del.	New Castle	Noon, July 15	Paving and curbing certain streets	Improvement Commission.
O.	Cleveland	Noon, July 15	Grading, paving, etc., portion of one street.	A. R. Callow, Comr. P. & Sup.
O.	Elyria	10 a.m., July 15	Repairing two roads	F. L. Ellenberg, Clk.
Mont.	Billings	4 p.m., July 16	Constructing standard curbing.	A. J. Thorne, Clerk.
O.	Springfield	Noon, July 17	Improving roadway with permanent pavement.	C. E. Ashburner, City Mgr.
Wis.	Watertown	2 p.m., July 17	6,714 sq. yds. reinforced concrete pavement; 4,371 ft. of combined concrete curb and gutter.	Board Public Works.
W. V.	New Martinsville	Noon, July 18	Constructing about 22 miles of brick road.	S. Myers, Co. Clk.
Pa.	Lebanon	5 p.m., July 23	10,000 sq. yds. paving	Mayor.
O.	Lorraine	1 p.m., July 23	Grading, draining and macadamizing.	Co. Comrs.
Pa.	Greensburg	Noon, July 24	Macadamizing, paving with brick, using drains and steel reinforcement, and constructing wire fence.	J. S. Sell, Co. Cont.
O.	New Lexington	Noon, July 27	Grading, graveling and paving with brick.	P. G. Skinner, Vil. Clk.
Va.	Roanoke	Noon, July 28	Granolithic sidewalks in various streets.	M. D. Moss, Asst. C. C.
SEWERAGE				
Pa.	Rouseville	7 p.m., July 13	13,800 ft. of 6-inch, 1,000 ft. of 8-inch, and 3,000 ft. of 12-inch vit. pipe sanitary sewer, with manholes, flush boxes, storm sewers, catch basins, etc.	G. H. Brush, Boro. Clk.
Tex.	Galveston	Noon, July 16	Constructing lateral sewer and appurtenances, consisting of 15,049 ft. 8-inch vit. pipe, etc.	M. E. Shay, Comr. W. W. & S.
WATER SUPPLY.				
Tex.	Killeen	July 13	Supplying 8,000 ft. of 4-inch, 550 ft. of 6-inch, and 1,500 ft. of 8-inch c-i. pipe; also gate valves, 20 ydrants, and motor driven well pump	Mayor and Council.
Pa.	Richland	July 13	Furnishing 115 tons of 6-in. and 8-in. c-i. pipe, 6,834 lbs. of specials, 19 hydrants, 15 valves, and 7,500 lbs. lead.	Mayor.
O.	Mansfield	Noon, July 17	About 7,000 ft. of 4-inch, and 4,000 ft. of 6-inch water main, specials, valves and hydrants.	O. Hursh, Dir. P. S.
N. Y.	Niagara Falls	4 p.m., July 20	Constructing water main and appurtenances in several streets	F. S. Parkhurst, Jr., Eng.
FIRE EQUIPMENT				
N. Y.	Buffalo	July 13	Furnishing 8,000 ft. of 2½-inch cotton rubber-lined hose	D. J. McConnell, Chief.
Pa.	Philadelphia	10 a.m., July 14	Furnishing hose	Navy Dept., Washington, D. C.
O.	Columbus	July 14	Constructing fire department repair shop.	E. L. Barger, Dir. P. S.
O.	Lorraine	July 17	Furnishing motor aerial truck	D. Hatt, Chief.
N. Y.	Canandaigua	July 20	Furnishing motor combination chemical and hose wagon and chassis for combination wagon	F. B. Cox, Chief.
MISCELLANEOUS				
Fla.	St. Petersburg	11 a.m., July 16	Constructing Library building	W. J. Straub, Pres.